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DOMESTIC ENGINEERING

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om—Radio
Used As A
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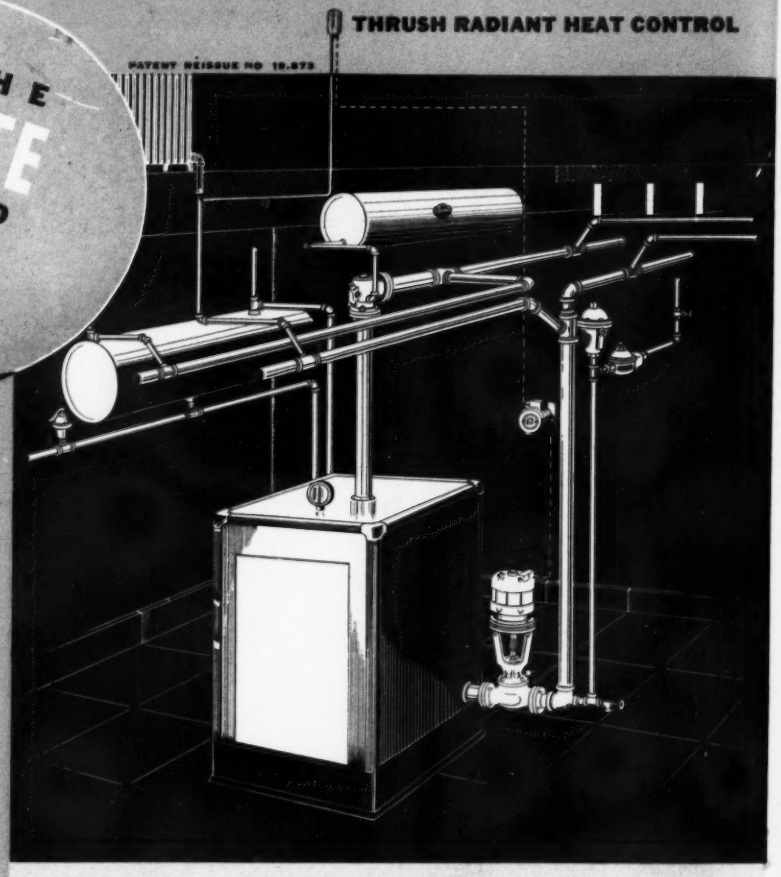
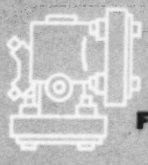
AUGUST
1937

INSTALL THE
COMPLETE
COORDINATED
HOT WATER
HEATING SYSTEM



THRUSH RADIANT HEAT CONTROL

operates by both air and water temperatures, smoothing out room temperature fluctuations and operating the burner for short intervals only.



THRUSH FLOW CONTROL

permits circulation of water only when heat is needed, prevents overheating and assures a plentiful supply of domestic hot water with year 'round operation of the system.

FORCED CIRCULATION

Thrush Circulator assures instant heat response, making every radiator heat uniformly, increasing fuel economy and eliminating circulation troubles.

MAIL THIS COUPON!

H. A. Thrush & Co.,
Box 459, Peru, Ind.
Tell us how we can increase our business by recommending Thrush Flow Control System.

Name_____
Address_____
City_____ State_____

ELIMINATE "COLD 70"

AND SELL MORE HOT WATER HEAT!

A Thrush Flow Control System of Hot Water Heating is completely automatic, sensitive to a fraction of a degree to room temperature change, heats quickly and is economical to install and operate.

It provides a steady, even, continuous flow of heat that gives a feeling of comfort and well being quite unlike any other heating method. Heat stratification is prevented and "cold 70" is eliminated because there is always some radiant heat. It is positively the most sensitive, satisfactory and economical form of heating you can possibly recommend to your customers. Mail coupon for bulletin.

H. A. THRUSH & CO., PERU, INDIANA

THRUSH FLOW CONTROL SYSTEM OF HOT WATER HEATING

VOGEL FROST-PROOF CLOSETS AND HYDRANTS

Give Positive Protection Against Freezing

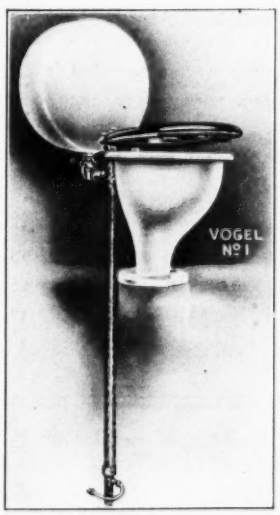
You don't have to qualify any statements about VOGEL Frost-Proof Closets and Hydrants. You can tell your customers that they will *not* freeze, no matter how cold the weather. This has been proved by almost 30 years' experience. Also, because the VOGEL line is complete, there is an outfit at the price your customer wants to pay.

More and more VOGEL Frost-Proof Hydrants are being installed in garages and on farms. This is profitable business and easy to get. Are you getting your share?

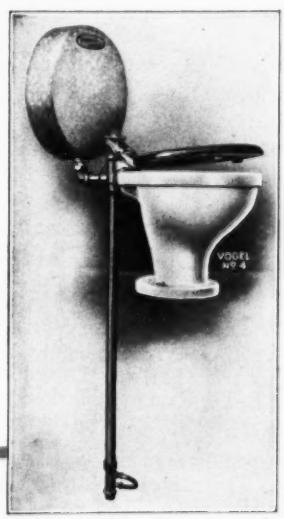
JOSEPH A. VOGEL COMPANY
Wilmington, Del. • St. Louis, Mo.

VOGEL PATENTED

Frost-Proof Products

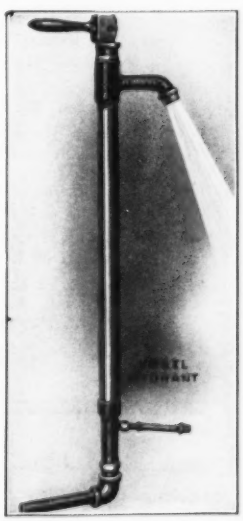


Vogel No. 1 — Many thousands in use in all parts of the country. Cannot freeze, no matter how cold the weather.



Vogel No. 4 — Frost-Proof. China bowl, top supply. Same valve as the Vogel No. 1. As good-looking as a bathroom closet.

Vogel No. 2 — Frost-Proof Closet. A durable, low-priced outfit. Supplied with enameled rim hopper and reinforced hardwood seat.



Vogel Frost-Proof Hydrant for outside installation and for use on farms, dairies and in unheated garages. Can never freeze.

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August, 1937

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OPPORTUNITY *keeps knocking* WHEN YOU SELL . . . GOULDS

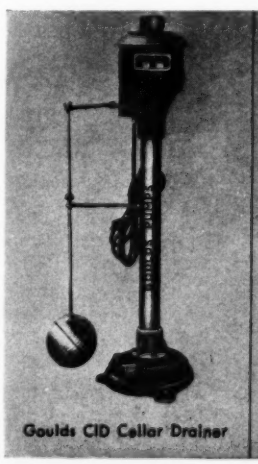
WATER SYSTEMS AND CELLAR DRAINERS

Your customers are looking for pump values like the CID Water Systems. With the name GOULDS behind them—with an established reputation for long and dependable service—with the price low enough to give your customers the biggest value for their dollars, the Goulds line of CID Water Systems is a lasting opportunity for ever-increasing sales and profits for you.

A complete line of Goulds Cellar Drainers, shallow and deep well pumps, enables you to meet any customer's requirements. Each pump is built to keep pumping costs low —to operate dependably year-in and year-out.

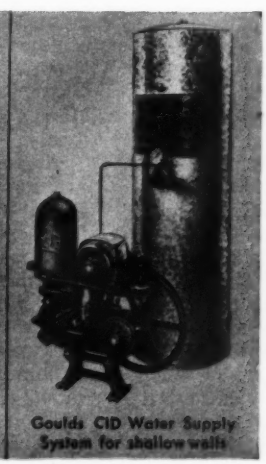
Every Goulds Pump sale leads to others. Right now is the time to make money on CID Pumps. They are sold under a policy that protects and favors the distributor. If your regular jobber does not handle the Goulds line, write for the name of the nearest Goulds distributor.

GOULDS PUMPS, INC., 200 FALL STREET, SENECA FALLS, N. Y.



Goulds CID Cellar Drainer

Goulds CID Water Supply System for deep wells



Goulds CID Water Supply System for shallow wells

GOULDS

RUNNING WATER

YOUR FAMILY DESERVES IT

7683

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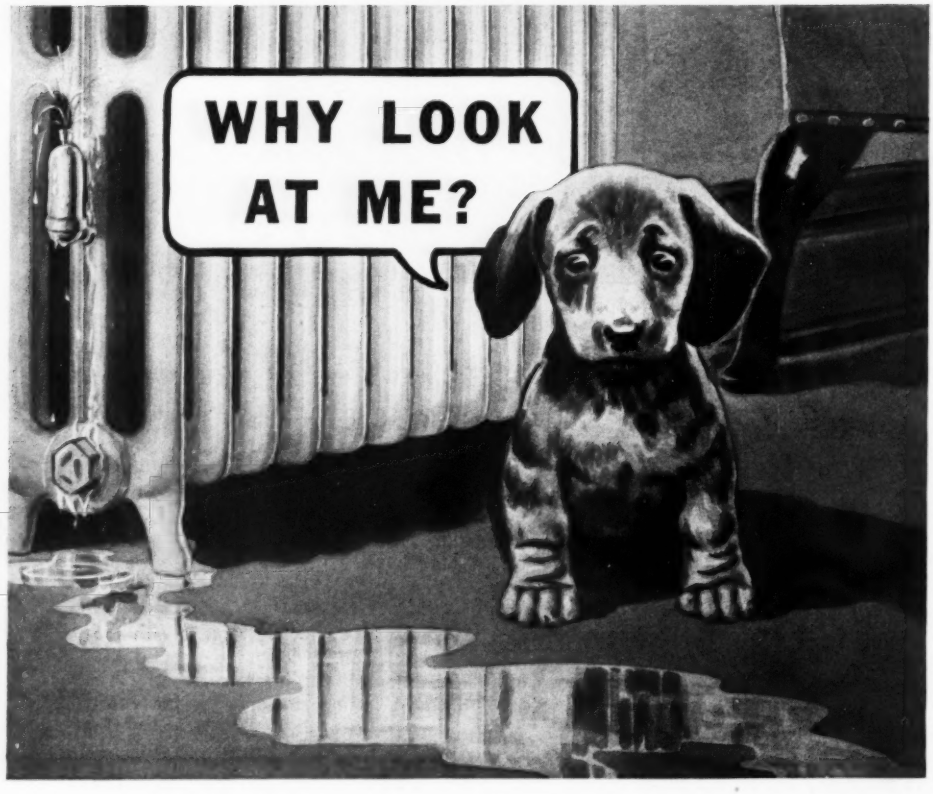


Use a "HOUSE-BROKEN" air valve!

THE owner of a heating plant may not know much about the fine spun mechanics of an air valve, but he does know a thing or two about how they should behave. He just won't put up with a "dribbler"!

So that time-honored ability of Marsh Air Valves to close good and tight the moment steam or water enters, would mean a lot, even if it were not combined with a number of other features that mean even more from the standpoint of heating efficiency and fuel saved.

All Marsh Air Valves clear down to the modestly priced "Travall" make a thorough job of all the things they are designed to do, but standing at the head of the list is a super-performer, the New No. 2 Air and Vacuum Valve. Here is a valve that vents air faster than any other valve we ever made. In fact, it vents air so fast that the radiators farthest from the boiler heat almost as rapidly as the nearest radiator. Since the radiators are all heated quickly, there is no need to "juggle" the air ports or air-bind the "fast heater" to compensate for the slow heater—and that means a lot of time and trouble saved.

The New No. 2 also has a triple vacuum seal—a vacuum-lock so bottle tight it will hold any vacuum that can be produced. With this finest of vacuum valves, and the other equally fine Marsh basement vents, you can modernize one-pipe systems with full assurance that your customer will never have a cause for complaint.

Remember that the Marsh line is the oldest line, the broadest line, and in the opinion of thousands, the best line. Ask for latest bulletins and discount sheets.

JAS P. MARSH CORPORATION, 2051 Southport Avenue, Chicago, Ill.

• MARSH NEW No. 2
Air and Vacuum Valve
Chrome finish in display package — ⅛" angle or straight pattern, ¼" straight pattern, ¾" male and ⅜" female straight pattern.

• MARVAL No. 2
Air and Vacuum Valve
Chrome finish in display package — same sizes and patterns as No. 2.

• MARVAL No. 1
Radiator Valve
Same quality as Marval No. 2, but without vacuum feature — same sizes and patterns as No. 2 valves.

• "TRAVALL"
A moderate priced nickel plated valve in same sizes and patterns as shown above.

MARSH — MAKES ALL RADIATORS FAST — **AIR and VACUUM VALVES** *Your Jobber Stocks Them*

What Kind? What Size? A LENGTH OR A CARLOAD?

YOUR DISTRIBUTOR *HAS IT* . . . . .

With complete stocks carried by leading distributors throughout America, you can depend upon prompt delivery of Wheeling COP-R-LOY Pipe for every type of project. Where conditions are unusually severe, where dependable, economical performance is essential, and where low cost is an important consideration, you can safely specify COP-R-LOY Pipe. It has written its own record for durability. Order COP-R-LOY tubular goods by name . . . It's Wheeling Steel. Wheeling Steel Corporation, Wheeling, West Virginia.

WHEELING STEEL

Whitaker Range Boilers and Special Tanks, made of COP-R-LOY, are available through your regular source of supply.

COP-R-LOY *Pipe*

Reg. U. S. Pat. Off.

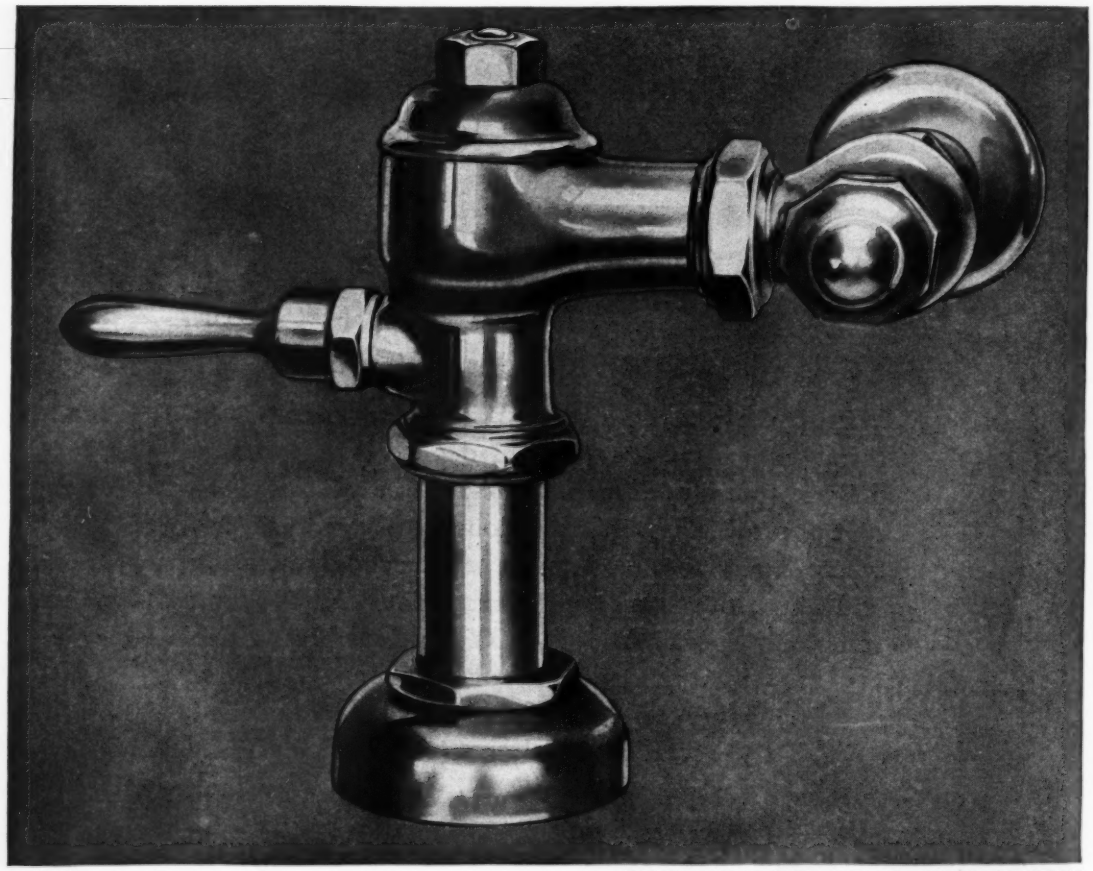
IT'S WHEELING STEEL

MAKING A NOISE ABOUT SILENCE. . . .

SILENT FLUSH VALVES offer plumbers today's biggest sales opportunity. Speakman, with its Si-Flo Flush Valve,* has started to make some noise about silence.

Month after month, we are telling architects, builders, building managers and the buying public how the Si-Flo reduces the sound of rushing water to a mere whisper.

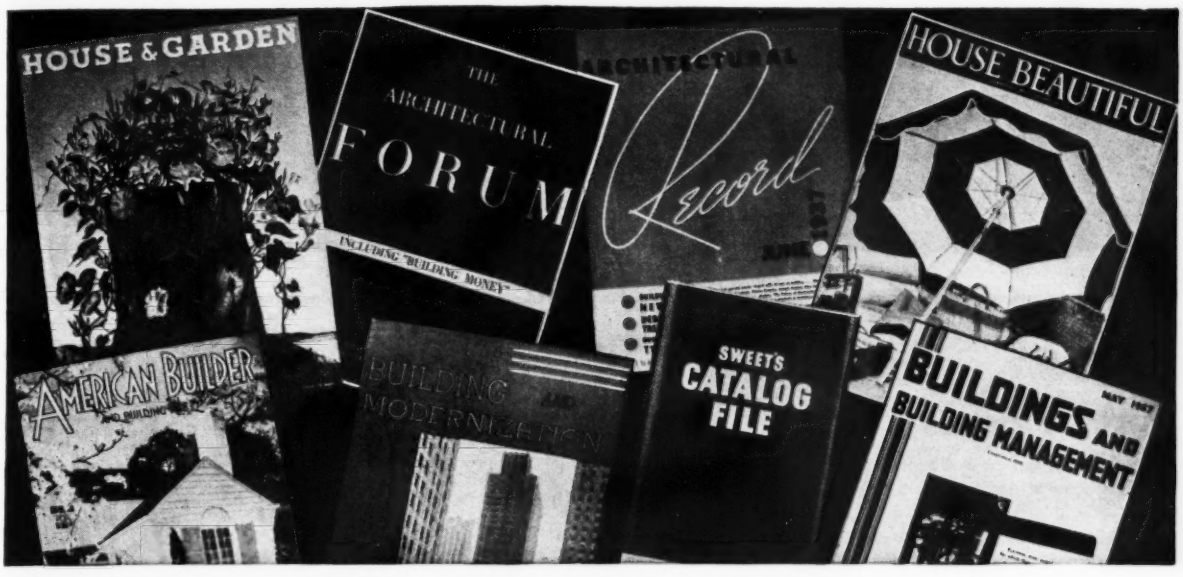
We are directing our appeal particularly to apartment houses, hotels, hospitals and institutions of all kinds, where old-fashioned,



* Pat. No. R. E. 20,246

ELIMINATES THE NOISE THAT ANNOYS

SPEAKMAN



noisy flush valves are a source of constant annoyance and complaint —where multiple sales opportunities await you.

We want your cooperation for both new and replacement business, for the Si-Flo Flush Valve is a specialty which will give you both volume and profit.

In design and construction, the Si-Flo upholds the Speakman reputation for high quality of both materials and workmanship. The entire operating mechanism of the valve is centered in one compact piston unit. If repairs are ever needed, this unit can be replaced in a very few minutes and at a minimum cost. Look at the Si-Flo illustration on the opposite page. There is a variation in roughing-in that allows easy adjustment, making installation simple and easy. That's just one of the features plumbers like so much in the Si-Flo.

Tie in with Speakman advertising . . . Get Si-Flo literature . . . Put a Si-Flo Flush Valve on display. Speakman national advertising is also telling the public about the Anystream Shower Head, the Mixometer and the wide price range in the complete line of Speakman bathroom and kitchen fixtures. Let this advertising be your assistant salesman—your profit-builder. Write today for free literature and full facts. SPEAKMAN COMPANY, WILMINGTON, DEL. Quality fixtures since 1869.

WHAT'S INSIDE?

In a watch, it's not the beauty of the outer case, but the precisely machined springs and balances that assure you of split-second accuracy in time-keeping.

Beauty alone is not enough

WHAT'S INSIDE?

In the Si-Flo Flush Valve, efficient, noiseless operation is assured by this compact piston unit, completely hidden from view, but easily accessible and quickly interchangeable.

SHOWERS • SHOWER HEADS • BATH FIXTURES • SI-FLO (SILENT) FLUSH VALVES
LAVATORY FIXTURES • SINK FIXTURES • INSTITUTIONAL AND INDUSTRIAL FIXTURES

SHOWERS AND FIXTURES

Announcing a Complete, New
WORKING CATALOG

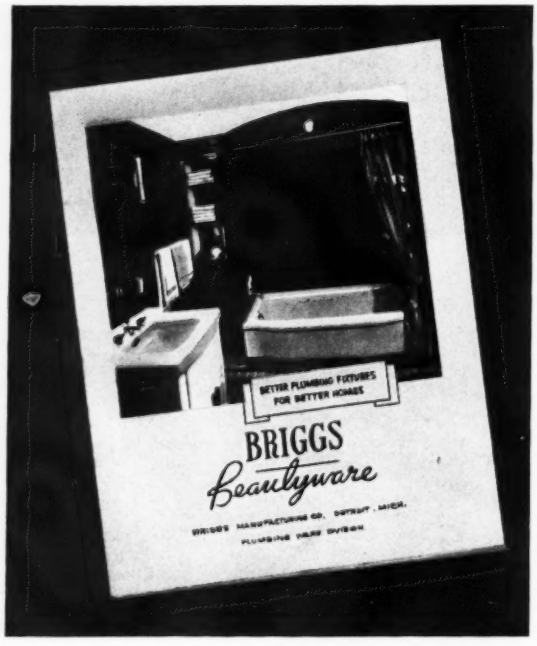
All Facts on Briggs Beautyware at Your Finger Tips

NEW MODELS

Many new models in bathroom and kitchen fixtures, new combinations, new finishes, new features and new sizes, increase the Briggs Beautyware market.

INSTALLATION DATA

New, practical, dimensional data coupled with roughing-in drawings, illustrates the simplicity of arrangement and installation of the Briggs Beautyware plumbing fixture line.



NEW PRICES

A complete adjustment and revision of price structure creates a "Leader" line of fixtures that brings Briggs Beautyware within reach of everyone.

NEW POTTERY

A new, diversified price and style range, with beauty and utility is emphasized by Briggs' design of its own exclusive units; closet bowls and combinations to meet every requirement.

BB

- Now you can specify and order Briggs Beautyware from a new catalog that includes all of the essential information on size, style, color and installation data within two covers.
- This practical, *working catalog* is intensely interesting and valuable to Master Plumbers, Builders and Architects who wish to be fully informed on the fast-selling line of Briggs Beautyware plumbing fixtures.
- In design, construction, finish, color combinations, sanitation and price, Briggs Beautyware represents a new, high dollar-value in the plumbing-fixture industry.
- Ask your authorized Briggs Beautyware wholesaler for your copy of the new catalog or write direct to Briggs, Detroit.

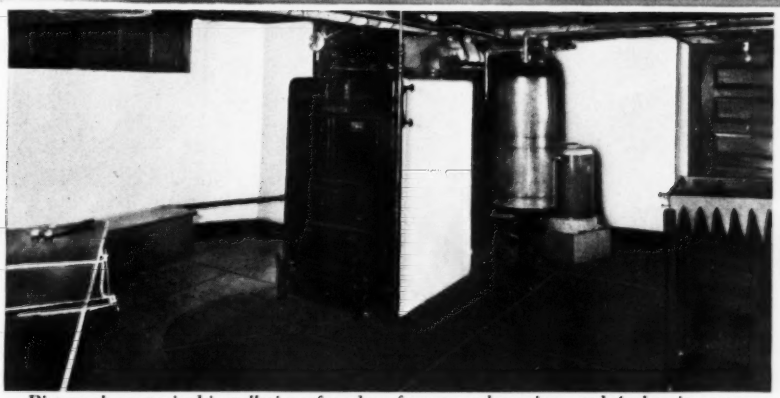
BRIGGS *Beautyware*

BRIGGS MANUFACTURING CO. • PLUMBING WARE DIVISION

DETROIT, MICHIGAN

ANTHRACITE HEATING NEWS

PUBLISHED BY ANTHRACITE INDUSTRIES, INC.
CHRYSLER BUILDING, NEW YORK



Picture shows typical installation of modern furnace, ash receiver, and Anthracite water heater. Note how the basement has been transformed into a game room.

● From now on, through October, is the time when new heating plants are being installed, and old heating plants are being modernized or repaired.

It is also the time when competitive equipment is sold most actively.

Work in close cooperation with local Anthracite dealers. By allied effort all of you will get more than a good share of the business that the season's activity presents.

● Meanwhile, Anthracite Industries, Inc. continues to advertise to builders, architects, banks and mortgage companies the advantages of Anthracite heating. The new developments in Anthracite equipment are being called to their attention.

Make the acquaintance of these people. Their recommendations control the fuel requirements of thousands of homes.

Anthracite is one of the nation's largest industries. It contributes about $155,000,000 to the national yearly payroll. Every ton of Anthracite sold not only adds to the national payroll but also to local payrolls.

● New York newspapers recently announced fuel oil prices for the coming heating season. Minimum price is 7½ cents a gallon. Maximum price is 8½ cents. Three years ago the low price was 5 cents a gallon, so during that period the price has risen 50%. Now, Anthracite's story of economy is more powerful than ever.

● Dealers pushing Anthracite Water Heaters and Regulators report great increases in sales. Possibilities are everywhere, for every third home lacks facilities for constant hot water. This new low-cost equipment brings the convenience of piping hot water, always on tap, within reach of most modest incomes. So tell every customer that these new water heaters need fueling only once a day with a few pounds of Anthracite. Explain how the new regulators automatically control the temperature of the water. Point out the savings in steps to the basement...the savings in time and labor. Sell Anthracite Water Heaters and Regulators and build bigger business.

This seal appears on Anthracite equipment only after it has passed the most rigid tests in the heating field.

● Dealers are making a big point of the wide range of automatic heat with Anthracite. Firing periods stretched to 12 hours with a thermostat installation. Magazine-fired heaters need firing only at 24 to 48 hour periods. There are also complete automatic Anthracite burners that feed fuel and dispose of ash all season. Thus, there's the right story to tell any prospect.

F L A S H

AMAZING NEW BOILER
Entirely New Principle

FOR STEAM, VAPOR OR HOT WATER HEATING

No piece of heating equipment in recent years holds more promise of sensational success than the New Anthra-Heat Unit. (Pictured above.) Entirely new principle. Combustion space and fire door eliminated. In the space formerly occupied by the combustion chamber, fuel is stored. This boiler needs no attention from one to three days, depending on weather. Fire level is always at same height. Air flows across the fire, instead of up through it. Flat spiral grate rotates to expel ash into receiver.

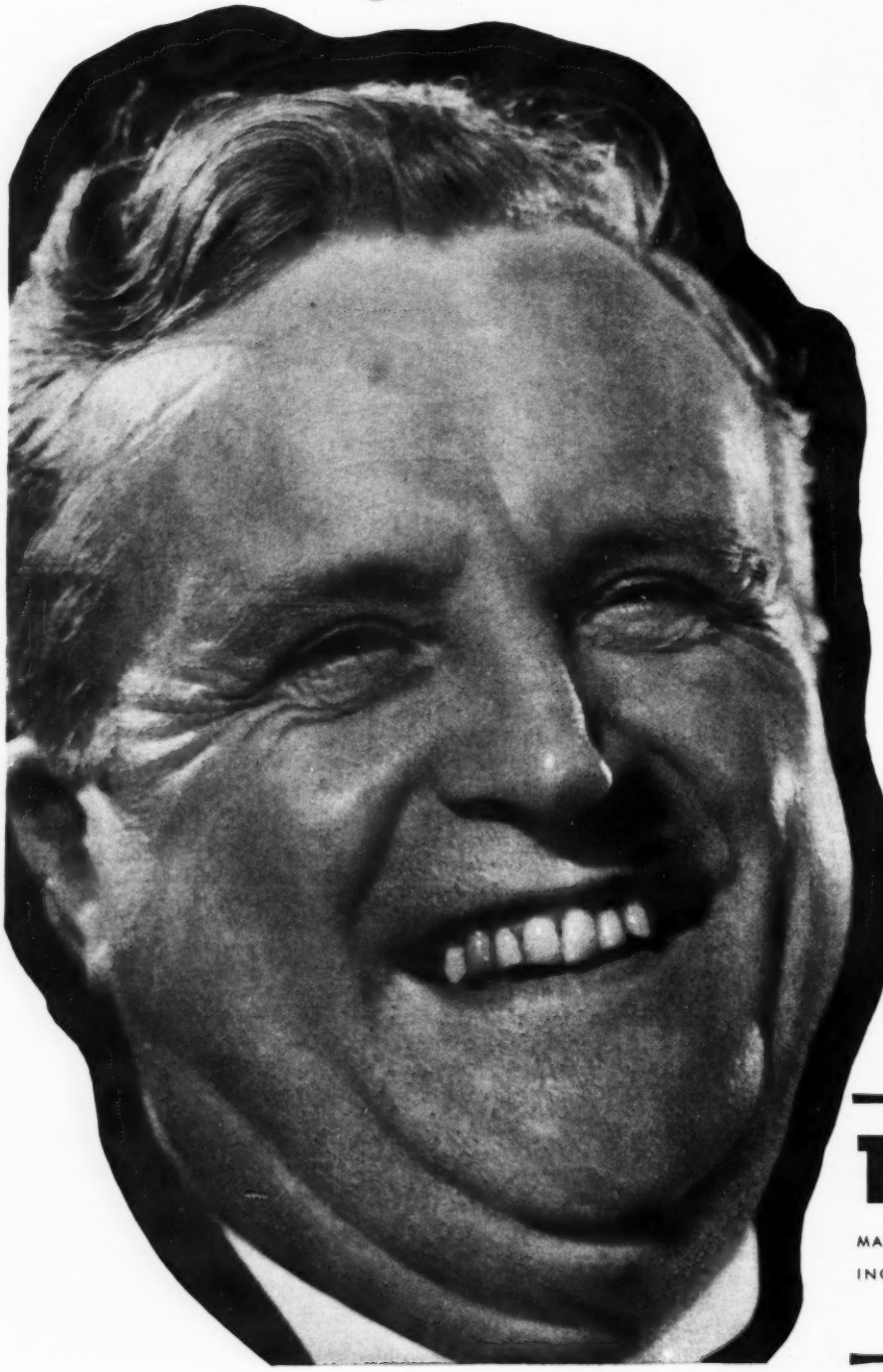
Great Fuel Savings

ANTHRA-HEAT UNIT

Write for names of Manufacturers

Pennsylvania
ANTHRACITE
COAL

"I'll stay IN



"Sure, I've had a good summer—specified more Trane air-conditioning for cooling jobs than ever before. With the heating season just around the corner, I'll stay with Trane in heating, too. Trane makes the best heating equipment money can buy."

TRANE

MANUFACTURERS OF CORRELATED
ING, COOLING, VENTILATING,
TRANE COMPANY OF

with Trane HEATING TOO!

TRANE gives you equipment for every type of heating installation ..."CUSTOM FITTED" to the individual situation — installed by local contractor

• The cooling season is practically over. For Trane it has been an extremely successful one, with more Trane cooling equipment specified and installed than ever before. Now comes the heating season, equally full of promise.

For over half a century the Trane Company has been a pioneer in the field of heating equipment. From a small beginning—back in 1885—it grew steadily until Trane heating equipment became as this consultant says, "the best . . . money can buy."

Trane's major contributions to heating practice cover the entire field of heating. More than a decade ago Trane Convectors—in cabinet form and concealed—began to replace obtrusive cast-iron radiators in large buildings, apartments, schools and residences. For certain school situations where equipment in addition to convectors was required, special heating, ventilating and humidifying equipment was perfected.

For residences, heating systems involving undivided responsibility were introduced, later combining with humidification and finally with complete air conditioning.

The proper heating of large areas with forced air—as in auditoriums—proved a hard problem to solve. Trane helped to solve it by perfecting the extended surface coil which was likewise used in hundreds of special industrial applications in commercial drying problems.

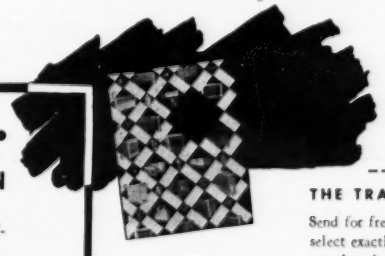
Factory heating practices, too, were improved when Trane unit heaters—after a series of improvements in coil, grille and mounting—brought costs down, and sent performance up. And for buildings of all classes the complete line of Trane specialties has always played a large part in insuring the highest degree of heating efficiency.

Recent developments in design and engineering lead one to believe that Trane contributions in the future will even surpass those of the past.

NEXT MONTH . . .

a startling improvement in space heating practice will be announced. For many months Trane engineers have been busy in laboratory and field testing revolutionary new equipment. Entirely new in design, sound in principle, thoroughly tested in the field, the new equipment marks another milestone of progress in the field of heating.

Next month on these pages—another Trane "first." Watch for it!



THE TRANE COMPANY • LA CROSSE, WISCONSIN

SYSTEMS AND EQUIPMENT FOR HEATING, HUMIDIFYING, AND DEHUMIDIFYING

CANADA, LTD., TORONTO

MAIL COUPON TODAY

THE TRANE COMPANY, LA CROSSE, WISCONSIN

Send for free bulletin—containing complete data, simply prepared to help you select exactly the right equipment for your particular requirements. Write giving complete details of your problems. DE-8

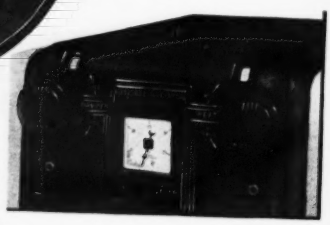
Name_____

Address_____

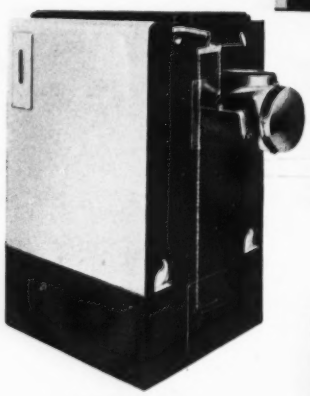
City_____ State_____

SHOW them the Boiler

STEP-A-DOR—*Touch this pedal with your toe and the wide ashpit door swings open. A light push closes it and holds it tightly in the grasp of an invisible lock. No woman (or man) now has to "stoop to conquer" the ashpit.*

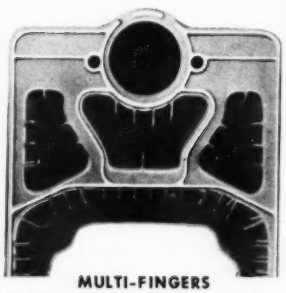


DAMPER DIAL—*Dial warmth as easily as you tune in your radio. Graduations behind windows show setting of the damper regulator and smoke-hood damper.*

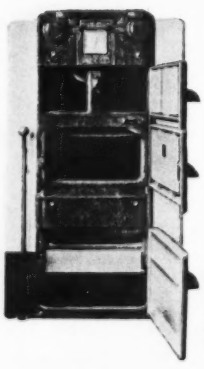


THE DAMPERATOR, *connected to the control knob on the boiler front, is visible only from the back of the boiler. This extremely sensitive regulator coordinates the opening and closing of the air intake and check draft doors to prevent overheating as well as underheating. Check draft is closed mechanically and it will open automatically if a chain is accidentally broken.*

SERIES AH—HAND FIRED BOILER.—A large opening is provided in the base side panel for a stoker. The stoker fired boiler, Series AM, is similar to the hand fired except for damper control, grates and shaking mechanism. Multi-fingers on water-legs and flue passages form the best type of heating surface for oil firing. See Series AO oil fired boiler, opposite page.



MULTI-FINGERS *in flueways and water-legs absorb a maximum of heat from the hot gases. The unusual shape of the flueways provides a large ratio of perimeter to area where the hottest gases pass.*



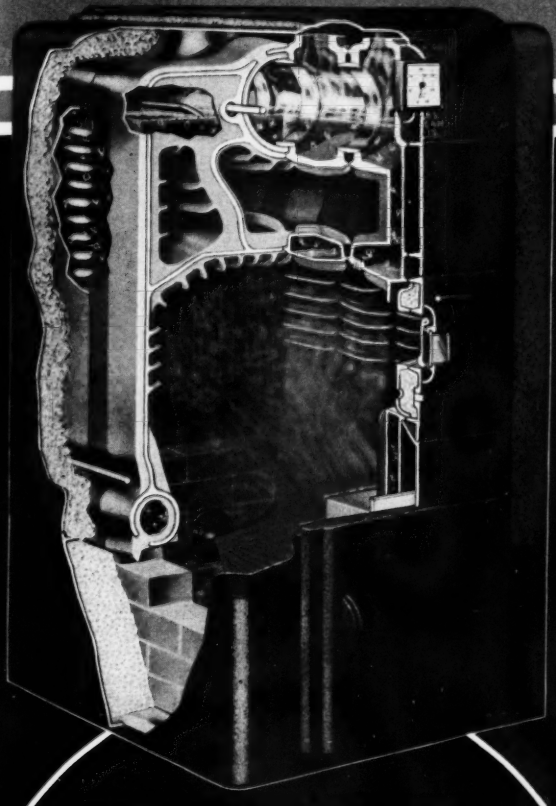
DOORS THAT AREN'T SHOVEL-SHY—*An extra-wide fire door makes it easy to stoke this boiler without spilling coal. A large cleanout door exposes all flue surfaces—facilitates cleaning. Liners in fire and cleanout doors slip into grooves—there are no bolts to corrode. The clinker door is full width.*

BRIDGE BARS—*The bridge-truss construction of grate bars enables them to stand more abuse without warping or breaking. All bars are interchangeable. Connecting bar disassembled by removing one brass cotter key. Shape of air openings admits more air, prevents fuel loss.*

SHAKER-SHIFT—*Looks like a gear shift—locks snugly to boiler. The grate lock, at a convenient height, regulates stroke and permits dumping whenever necessary.*

NEW! for Hand, Stoker or Oil Firing

that makes them YEARN



NATIONAL
Multi-finger
Heat Extractor
Boiler

PEOPLE expect miracles. They said, "Give us a boiler that can be efficiently hand, stoker or oil fired! Give us one we can want!" Four years ago we set out to do it. Now, we've done it!—not by merely face-lifting an older model but by finding out what the requisites for hand, stoker and oil firing were; by finding out what buy-sighted people really wanted. The answer—the NATIONAL Multi-finger HEAT EXTRACTOR BOILER—is an entirely new boiler creation from top to bottom, so designed that it can be quickly converted from hand to stoker to oil firing (or back again) with a few inexpensive changes. One that will operate *efficiently* no matter how it is fired. One that will get along with any man or woman.

We couldn't begin to tell you all the engineering and merchandising advantages of this utterly different boiler in these two pages. We therefore show you on the opposite page the outside of a Series AH for hand firing and a few of its important features. On this page is shown a cut-a-way view of the Series AO for oil firing.

Just look at it! Here's *efficiency!*—in greedy Multi-fingers that snatch the heat from the flue gases; in the most effective insulation known. Here's beauty!—in a Stygian black and Matador red jacket; in simple, modern streamlines, rounded corners, in the complete absence of ugly projections. Here's convenience!—controls that eliminate stooping and stretching. Here's a plentiful supply of domestic hot water, and numerous other convenience features that lighten boiler tending, shorten the work of installation.

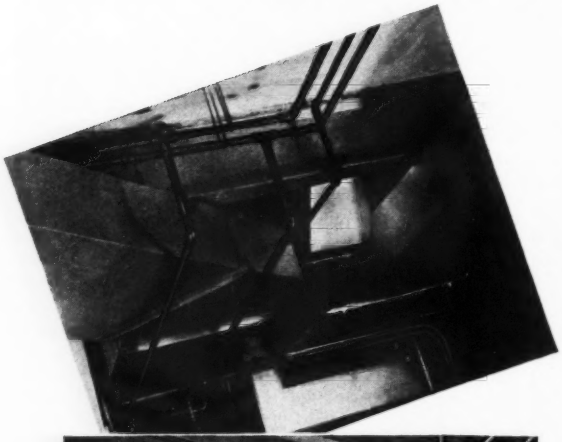
Every last detail of the *National* Multi-finger *Heat Extractor Boiler* was critically investigated. As a result there are also little improvements such as air-cooled door handles and stainless steel hinge pins.

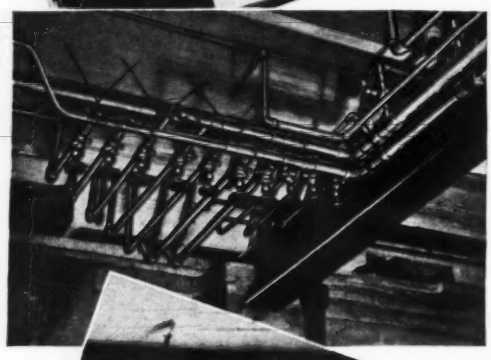
Why swim upstream? Give them the boiler that will make them yearn. Find out all about this quick-change boiler, how it performs with stoker or oil firing. How well it is suited for use with air conditioning. Find out! Write for booklet No. 292 or preferably . . . . .

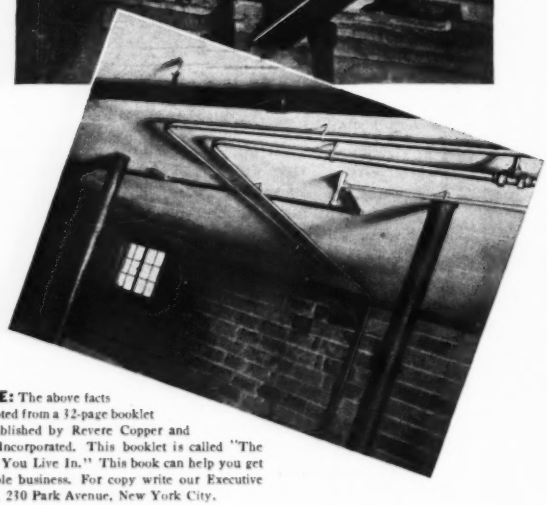
NATIONAL · RADIATOR · CORPORATION
Johnstown, Pennsylvania

The Case for

COPPER WATER TUBE







*Here are facts that will help you sell your prospects**

Advantages: 1 Revere Copper Water Tube is non-rusting and under all ordinary conditions provides lifetime, trouble-free service.

2 Assembled without threaded connections, permitting savings in metal, and consequently lower cost.

3 With soldered or compression fittings, it permits a superior installation at a reasonable price. Revere Copper Water Tube should be considered for practically any house, regardless of size or price.

4 The gun-barrel inside finish of Revere Copper Water Tube—plus the fact that the inside of the fitting is of the same diameter—insures a constant, rapid passage of water.

5 No rust accumulates in Revere Copper Water Tube; therefore it is not necessary to install oversize piping as is ordinarily done with rustable pipes, an important economy.

6 In case of accidental freezing, it accommodates itself to the expansion; does not burst.

7 Revere Copper Water Tube, excepting Type L, Hard Temper and Type M, can be readily bent where required.

8 A finished job of Revere Copper Water Tube and Streamline soldered Fittings is noticeably compact and neat.

When your customer says, "How Much?"

Many of these advantages mean actual dollars saved your customer through elimination of leaks and repairs.

When your customer says, "How much?" it is easy to show that Revere Copper Water Tube on any job is cheaper than rustable piping in the long run; and in some cases it is little, if any, more expensive even in first cost.

***NOTE:** The above facts are quoted from a 32-page booklet just published by Revere Copper and Brass Incorporated. This booklet is called "The House You Live In." This book can help you get profitable business. For copy write our Executive Offices, 230 Park Avenue, New York City.

Revere Copper *and* Brass

INCORPORATED

FOUNDED BY PAUL REVERE 1801

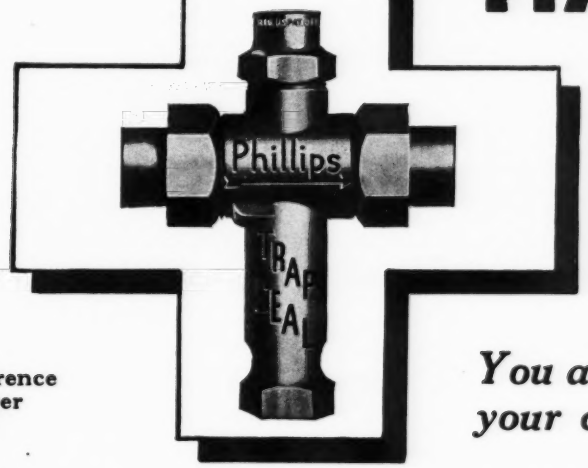
EXECUTIVE OFFICES: 230 PARK AVENUE, NEW YORK CITY · MILLS: BALTIMORE, MD. · TAUNTON, MASS. NEW BEDFORD, MASS. · ROME, N. Y. · DETROIT, MICH. · CHICAGO, ILL. · SALES OFFICES IN PRINCIPAL CITIES

CHICAGO FAUCET NEWS

Issued Monthly by The Chicago Faucet Co., 2700-22 N. Crawford Ave., Chicago, Ill. Vol. 5, No. 10

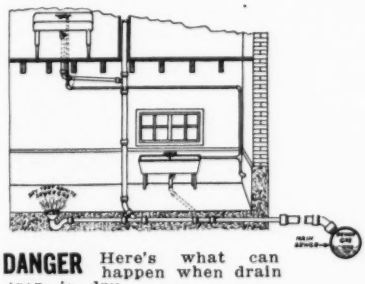
All parts of Chicago Faucets subject to wear are incorporated in a standardized, removable, interchangeable operating unit and are as easily renewable as an electric light bulb.

Eliminates THE LAST HAZARD FROM MODERN PLUMBING

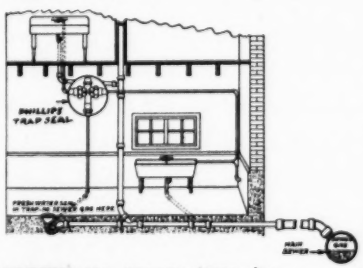


You are responsible for your customer's safety

The simple difference between danger and safety



DANGER Here's what can happen when drain trap is dry.



SAFETY No danger here, because Phillips Trap Seal maintains a fresh-water seal perpetually.

Recommend and install Phillips Trap Seal

Despite the great advances made in plumbing during recent years, there still remains one distinct hazard—**the human factor.** Many owners carelessly neglect to keep floor drain traps replenished. Whenever they allow evaporation to break the water seal they unconsciously invite disaster. Unwholesome, sometimes deadly, odorless sewer gas insidiously enters the home. Hordes of filthy, disease-bearing vermin infest the premises. Mysterious illnesses ensue. Family health declines. Nobody thinks to call the plumber; so, often, the source of the trouble remains obscure.

Many communities have officially recognized the danger lurking in dry drain traps, and have established rigid requirements for automatic water seal maintenance. The day is not far distant when such provision will be universally mandatory. Meanwhile, sewer gas is surreptitiously taking its toll. Right now, as you read this, a customer's family may be exposed to the menace. They think they have safe plumbing. You installed it, and they rely on you. But when you told them to be sure to keep water in the trap of the floor drain they promptly forgot your admonition—or ignored it. So check up on your installations. Point out the danger in dry drain traps. Recommend the Phillips Trap Seal as the certain safeguard. You'll be well rewarded for your interest.

The Phillips Trap Seal, illustrated above, automatically maintains the water seal in drain traps. It is simple, having but one moving part, and is easy to install. Connected to a convenient cold water supply line to a frequently used fixture, such as the kitchen sink or water closet, the Phillips valve opens automatically each time water is drawn at the fixture and delivers a small quantity through a pipe directly into the drain trap. The valve closes when flow through line ceases; thus preventing waste, but insuring an oft-replenished fresh water seal at all times.

Write today for full particulars and sample.

PHILLIPS TRAP SEAL

Automatically Maintains a Water Seal in Floor Drains

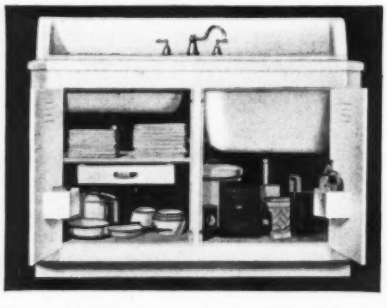
SINK AND LAUNDRY SERVICE ALL IN ONE FIXTURE!

NEW KOHLER SALES-MAKERS FOR ALERT MASTER PLUMBERS

WE'VE got something here — the Kohler Sea Cliff — especially desirable for the apartment kitchenette. A new Tray-Sink with 14"-deep laundry tray and an 8"-deep sink basin. Swing spout mixer-type faucet reaches both compartments. 3" ledge across the back for soap, brush, cleanser, other articles. Available in regular or acid-resisting enameled cast iron. Two sizes: 42" x 24" or 50" x 24".

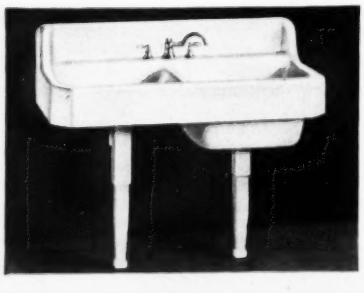
(Above, left) AMPLE SPACE for dishwashing. An enameled steel drainboard which fits over either compartment is available, and provides all the advantages of a regular sink with built-in drainboard. . . .

(Above, right) . . . PLUS THE LAUNDRY TRAY. The deep basin makes this section plenty large enough for washing lingerie, stockings and even a small family wash.



THE SPACE-SAVING CABINET is made of heavy gauge sheet steel, rigidly enforced. Besides the two big compartments there is a spacious shelf and drawer. Each door has a handy utility basket for small kitchen knick-knacks. Drawer and doors have rubber bumpers. Open and close quietly. 3-inch toe recess.

THE CAMBORNE. Except for the metal cabinet, the Camborne has all the outstanding features of the Sea Cliff. The sink has a deep apron and adjustable legs. It can also be had with round legs, installed at the ends. Available with the sink at the left, as shown, or at the right.



These are only two of Kohler's complete line of sinks — sinks for every kitchen, every budget. Stock them and cash-in on the swing to better kitchens. Stock Kohler bathroom fixtures too! There's no substitute for Kohler craftsmanship, for Kohler quality. Kohler Co. *Founded 1873.* Kohler, Wis. *Shipping Point,* Sheboygan, Wisconsin.

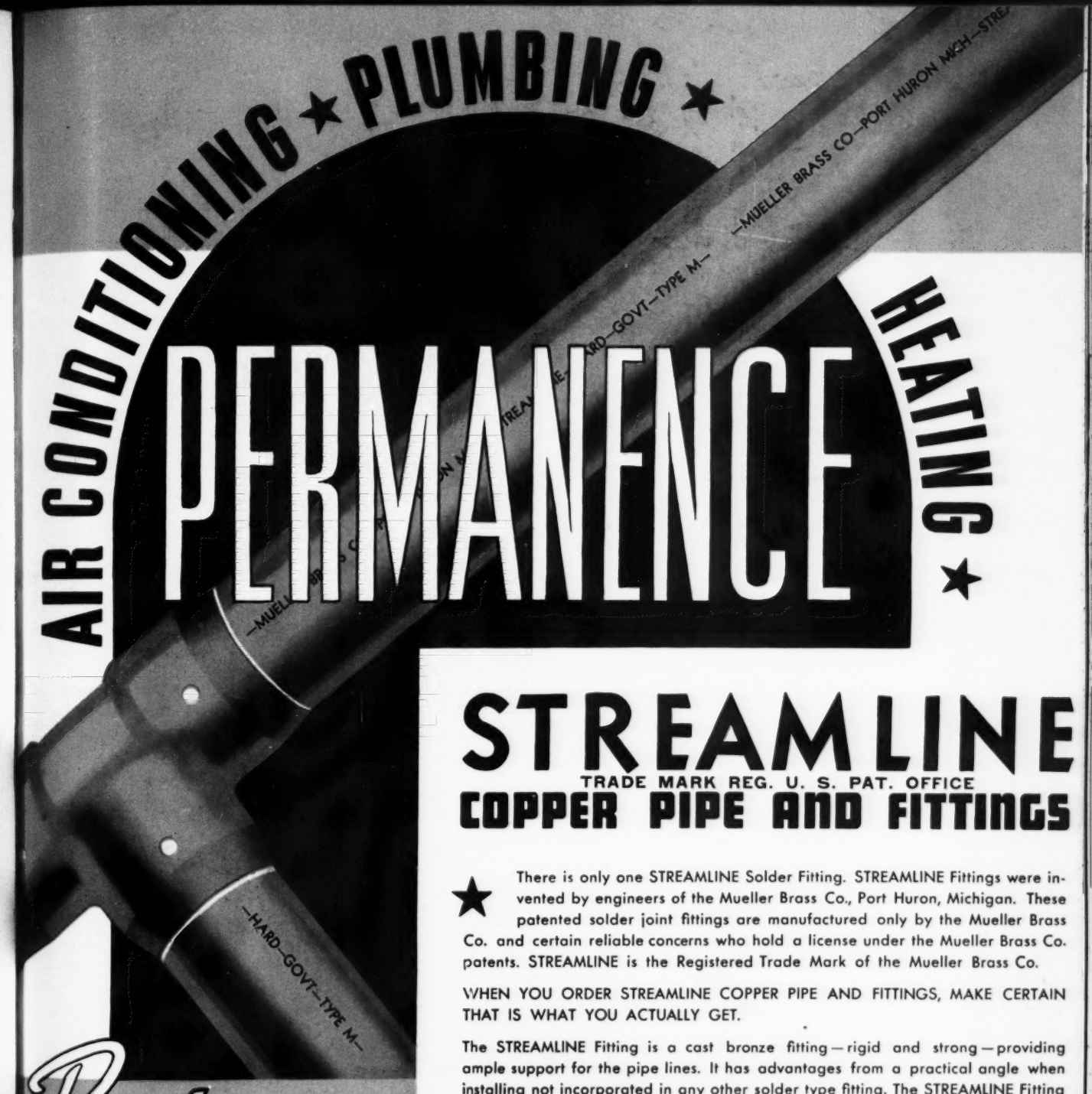
USE KOHLER FITTINGS ON KOHLER FIXTURES

KOHLER OF KOHLER

PLANNED PLUMBING AND HEATING

AIR CONDITIONING ★ PLUMBING ★ HEATING ★

PERMANENCE



STREAMLINE

TRADE MARK REG. U. S. PAT. OFFICE

COPPER PIPE AND FITTINGS

★ There is only one STREAMLINE Solder Fitting. STREAMLINE Fittings were invented by engineers of the Mueller Brass Co., Port Huron, Michigan. These patented solder joint fittings are manufactured only by the Mueller Brass Co. and certain reliable concerns who hold a license under the Mueller Brass Co. patents. STREAMLINE is the Registered Trade Mark of the Mueller Brass Co.

WHEN YOU ORDER STREAMLINE COPPER PIPE AND FITTINGS, MAKE CERTAIN THAT IS WHAT YOU ACTUALLY GET.

The STREAMLINE Fitting is a cast bronze fitting—rigid and strong—providing ample support for the pipe lines. It has advantages from a practical angle when installing not incorporated in any other solder type fitting. The STREAMLINE Fitting alone possesses the true visual inspection feature whereby the mechanic can tell at a glance that the joint he has just made is leak-proof without resorting to an actual pressure test. He knows too when the proper amount of solder has been used, because the conditions and tolerance on each side of the feed hole are the same. When the solder appears at the outer edge of the fitting, it is proof that it also has traveled the same distance to the pipe shoulder.

STREAMLINE Copper Pipe is not commercial copper pipe. It is a greatly improved product of uniform diameter and consistently close tolerance.

STREAMLINE Solder Fittings are manufactured in sizes from ¼" to 12" inclusive, and in a complete range of reductions in tees and elbows. You connect directly to the smaller or larger pipe lines without the use of adapters with their additional expense both for material and labor. A PERMANENT JOB—A LESS EXPENSIVE JOB—AND A MORE WORKMANLIKE JOB.

Use STREAMLINE Copper Pipe, connect it with STREAMLINE FITTINGS—ALWAYS.

Manufactured in Canada Under License by
CANADA WIRE & CABLE CO. LTD., TORONTO, CANADA

Best FOR ALL INDUSTRIAL PIPE LINE SYSTEMS

STREAMLINE
PIPE AND FITTINGS DIVISION
MUELLER BRASS CO.
PORT HURON, MICHIGAN

PACKLESS

Means LEAK-PROOF!

. . . AND MORE SALES FOR YOU THAT ARE PACKED WITH PROFIT

THE Minneapolis-Honeywell Packless Seal Circulator banishes forever leaking oil and water. Its precision construction and scientific lubrication make it permanently quiet. In every sense of the word it is a M-H quality job, yet it comes to you at a specially attractive price. You will find the combination of Circulator and Series 10 Relay gives you an entirely new, more economical and fully automatic set up of control for summer-winter systems. The same combination can be economically installed on systems where the Circulator is used only to speed circulation. Install a M-H Packless Seal Circulator on your next job. It is packed with profit for you and will make life-long friends of your customers. Your nearest Minneapolis-Honeywell branch office can supply all the details. Minneapolis-Honeywell Regulator Co., 2801 Fourth Ave. So., Minneapolis, Minn.

CHECK THESE SUPERIOR FEATURES

1 IT'S QUIET. Quiet when you get it, quiet in years to come.

2 IT'S LEAK PROOF. Sealed with the famous M-H Packless Seal, an exclusive feature of vital importance. No oil or water to soil the modern basement.

3 IT'S PRECISION BUILT. Bearings perfectly aligned with precision tolerances.

4 IT'S SCIENTIFICALLY LUBRICATED. Oil reservoir lubrication design insures trouble-free performance. Long lasting oil supply readily renewed by home owner.

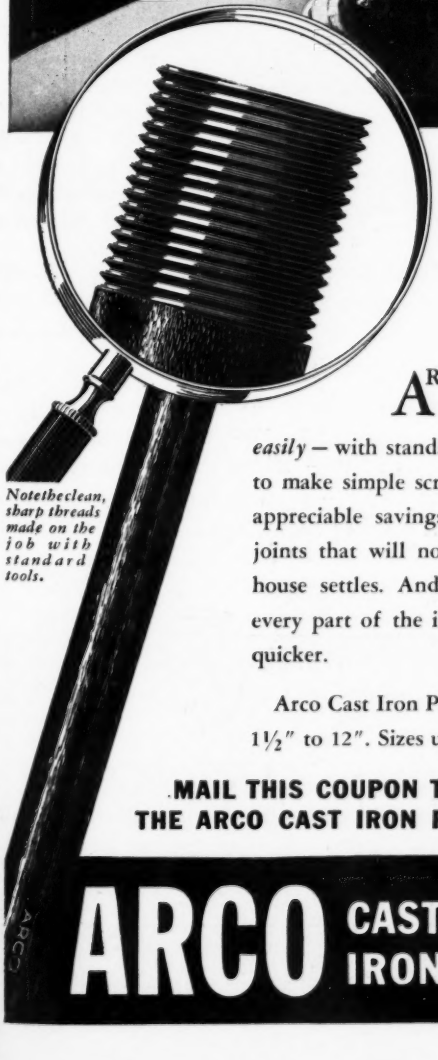
MINNEAPOLIS-HONEYWELL

AUTOMATIC CONTROLS MH

Packless Seal CIRCULATOR

DEPENDABLE CONTROLS COST LESS THAN SERVICE

EASY TO INSTALL IN WASTE, VENT and DRAINAGE SYSTEMS



Note the clean, sharp threads made on the job with standard tools.

ARCO CAST IRON PIPE

COSTS LESS IN THE LONG RUN

- *Cuts and threads* clean *with standard tools*
- *Furnished in easy-to-handle 6′ lengths*

ARCO Cast Iron Pipe can be threaded on the job, *easily* — with standard tools. It allows you to make simple screwed connections with appreciable savings in space. It provides joints that will not develop leaks as the house settles. And new 6′ lengths make every part of the installation simpler and quicker.

Arco Cast Iron Pipe is furnished in sizes 1½″ to 12″. Sizes up to 6″ run 6′, 12′ and 18′ lengths. Other lengths may be obtained on special order. Either or both ends may be plain, threaded one end and tapped bell the other, or grooved for special couplings.

Try Arco Cast Iron Pipe on your next job. See what a difference it makes! For complete information mail the coupon now for the Arco Cast Iron Pipe Manual.

Arco Pipe and Fittings Division

AMERICAN RADIATOR COMPANY

DIVISION OF AMERICAN RADIATOR & STANDARD SANITARY CORPORATION

42 West 40th Street, New York, N. Y.

MAIL THIS COUPON TODAY FOR THE ARCO CAST IRON PIPE MANUAL

Arco Pipe & Fittings Division
AMERICAN RADIATOR COMPANY
42 West 40th Street, New York, N. Y.

I am interested in Cast Iron Pipe. Send me your Arco Cast Iron Pipe Manual.

*Name*_____

*Firm Name*_____

*Address*_____

*City*_____ *State*_____ DE-8

ARCO CAST IRON PIPE

"HIGH GEAR" YOUR HEATING SALES TO CRANE'S 1937 CAMPAIGN

1937 offers the Heating Contractor a gigantic replacement market—bigger than has been seen for many years. A flood of orders has backed up behind the dam of the depression—this flood is about to be released. Mr. and Mrs. Homeowner are thinking *NOW* about replacing their heating system—this means opportunity for *You!*

The Big Crane Heating Campaign is focused directly on this fall replacement market. Crane Heating Equipment is designed to suit the replacement market just as satisfactorily as it does new construction. There is a Crane Boiler for every fuel—engineered to burn that fuel most economically—to give complete automatic heat.

"High Gear" your sales this fall to the Crane Heating Program—ask the Crane Salesman to show you the big promotion portfolio—"Bigger Heating Sales for 1937"—cash in on this replacement market with Crane.

CRANE OFFERS YOU

The same high quality in heating equipment that your customers associate with Crane Plumbing—coupled with a complete line including boilers for every type of fuel—valves and fittings, radiators, convectors and humidifiers.

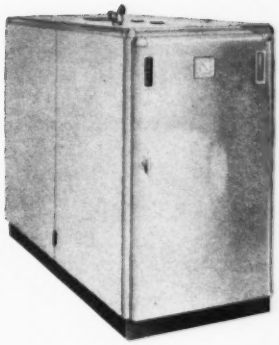
- ✔ DEPENDABLE HEATING
- ✔ ECONOMICAL HEATING
- ✔ A COMPLETE LINE
- ✔ NEW IMPROVEMENTS
- ✔ A PROMOTIONAL CAMPAIGN
- ✔ *and profits*

CRANE

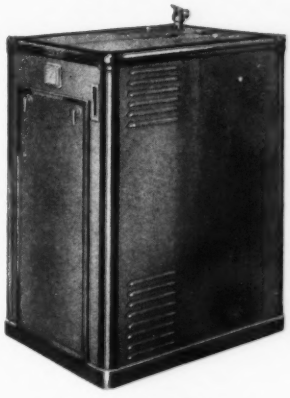
CRANE CO., GENERAL OFFICES: 836 S. MICHIGAN AVE., CHICAGO, ILL.

Branches and Sales Offices in One Hundred and Sixty Cities

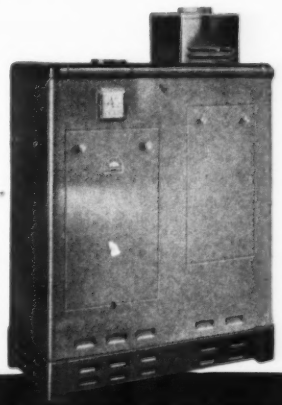
VALVES, FITTINGS, FABRICATED PIPE, PUMPS, HEATING AND PLUMBING MATERIAL



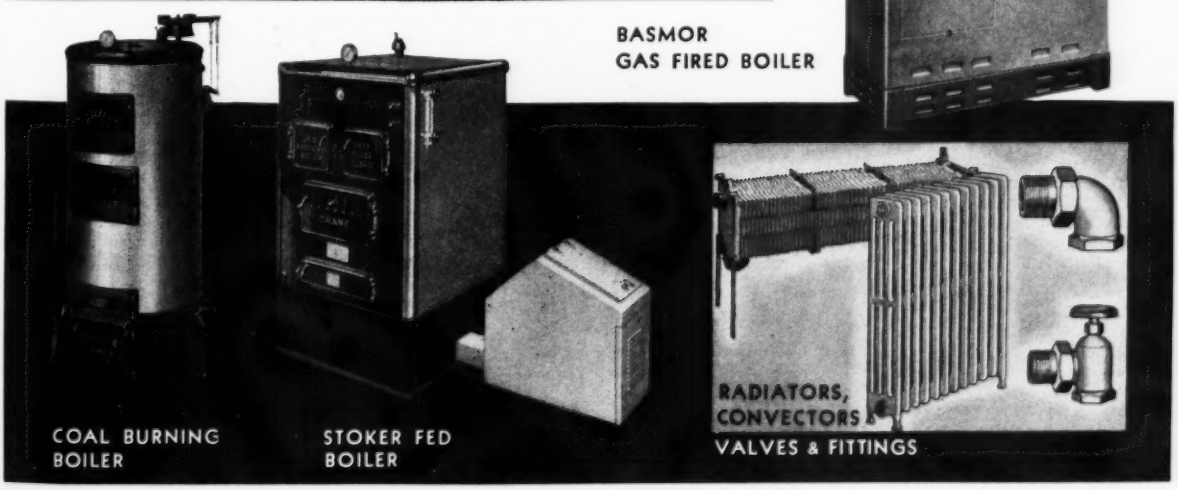
OIL BURNING BOILER



BOILER BURNER UNIT



BASMOR GAS FIRED BOILER

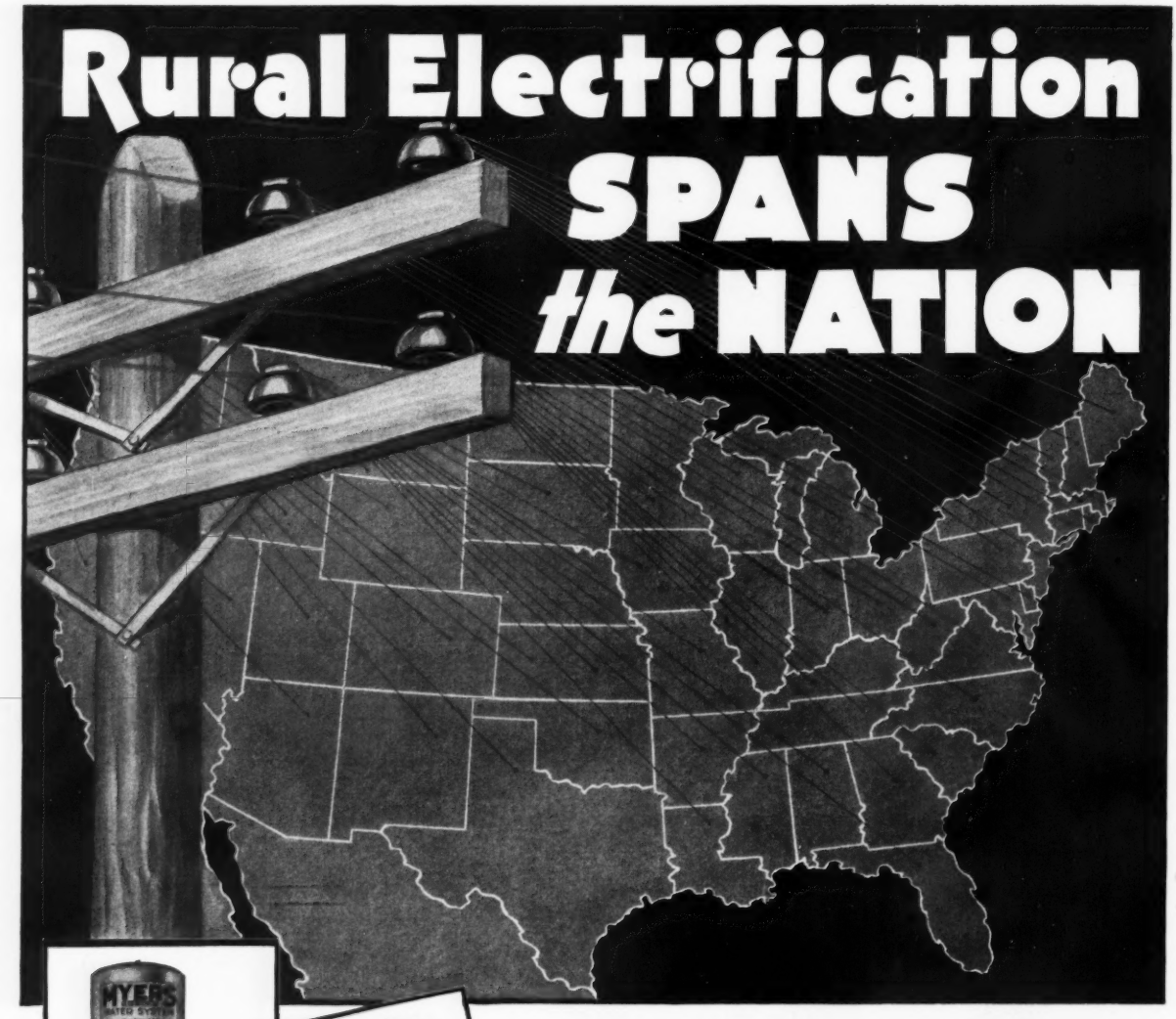


COAL BURNING BOILER

STOKER FED BOILER

RADIATORS, CONVECTORS & VALVES & FITTINGS

Rural Electrification SPANS the NATION



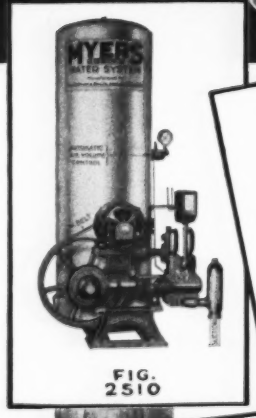


FIG. 2510

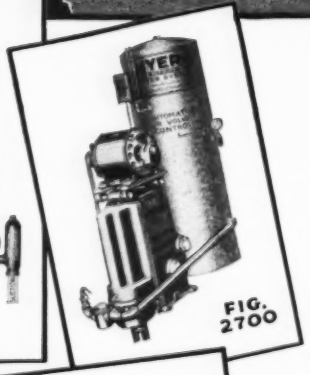


FIG. 2700

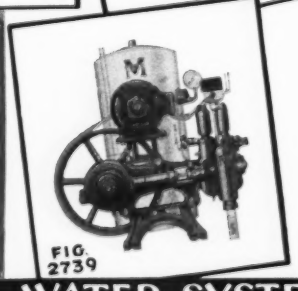


FIG. 2739

Year after year, Myers Water Systems continue to lead the way to profitable business for Myers Dealers, but this year with rural electrification spreading out in every direction, dealers who have taken full advantage of the Myers line with its many superior features and high reputation for quality have reaped greater profits than ever.

Don't pass up this market or any part of it. Sell and install Myers Water Systems—the complete line with dependable styles and sizes for almost any installation be it for the home, farm, factory, public or private buildings or institutions.

Start your program today—write us for catalog and complete information and cash in during the summer and fall months —the peak months for pump and water system business.

THE F. E. MYERS & BRO. CO.
ASHLAND, OHIO

PUMPS–WATER SYSTEMS–HAY TOOLS–DOOR HANGERS

Goodbye to Scale trouble! . .

install NATIONAL SCALE FREE PIPE

USE NATIONAL Scale Free Pipe, and get rid of costly trouble caused by mill-scale. You'll be better satisfied, and so will your customers.

Every bit of scale is removed mechanically from NATIONAL Pipe (butt-weld sizes ½ to 3 inches). Inside and out, it's as clean as a whistle. In this pipe there's nothing to damage valve seats, clog small orifices, injure meters, or otherwise harm service.

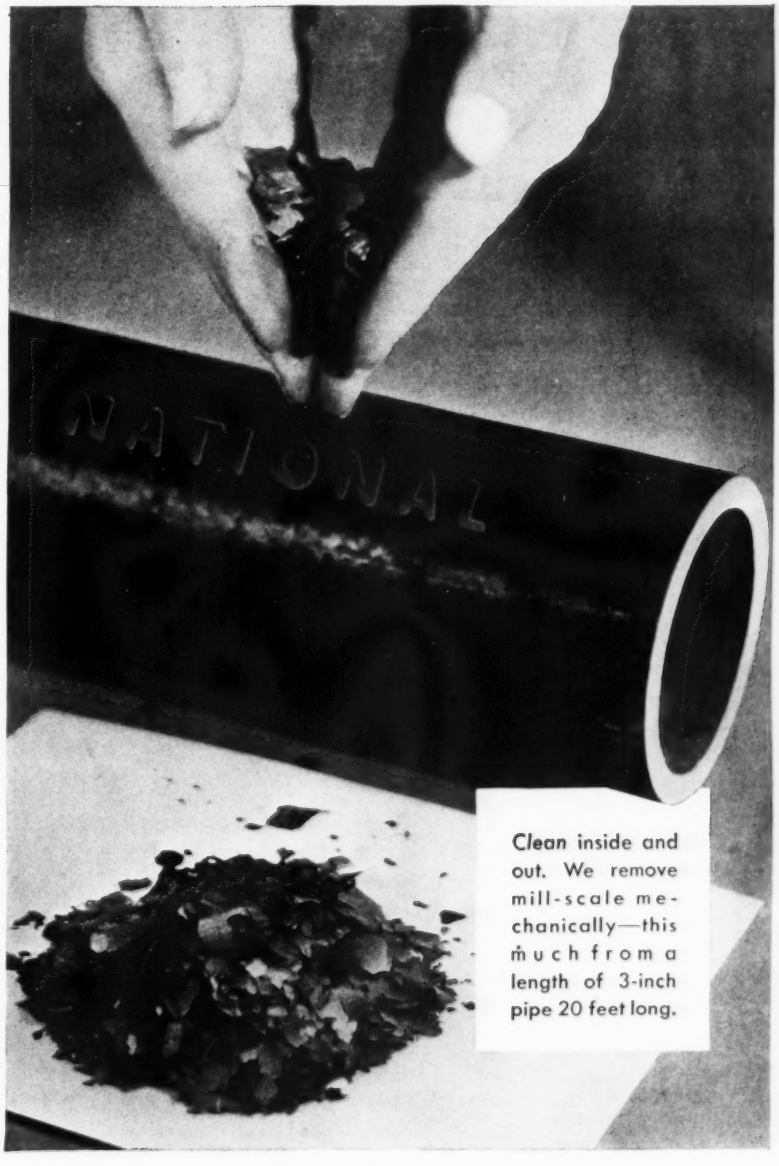
IT'S SPELLERIZED

—to resist corrosion

The removal of this mill-scale from both the inside and outside surfaces, plus the special Spellerizing Process, gives NATIONAL Scale Free Pipe extra resistance to corrosion. The uniform, strong, ductile steel and the good threading qualities of NATIONAL Pipe save installation cost and labor—make the job easier and quicker.

You'll find this trouble-saving, money-saving product not only a good pipe to work with, but also a good pipe to recommend. Try it!

NATIONAL
Scale Free
PIPE



Clean inside and out. We remove mill-scale mechanically—this much from a length of 3-inch pipe 20 feet long.

NATIONAL TUBE COMPANY

PITTSBURGH, PA.

Columbia Steel Company, San Francisco, *Pacific Coast Distributors* · United States Steel Products Company, New York, *Export Distributors*

UNITED STATES STEEL

TESTED

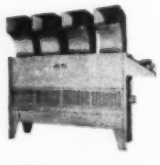
AT 1000 LBS.
hydrostatic pressure

GUARANTEED
FOR 200 LBS.
steam pressure

. . . Speed Heater heating elements are absolutely trouble-free

When a heating element leaks, its everybody's headache. That's why we make absolutely sure about Sturtevant Speed Heaters. Every heating element gets a 1000 lbs. hydrostatic test . . . and then our guarantee for all steam pressures up to 200 lbs. per square inch. ¶ AND (1) easy to install . . . run in supply and return lines on either side. (2) Slap them right up against the ceiling . . . when headroom is limited. (3) Immediate shipment of all popular voltages.

B. F. STURTEVANT CO., Hyde Park, BOSTON, MASS.
Branches in 40 Cities B. F. Sturtevant Co. of Canada, Ltd.—Galt, Toronto, Montreal



Rexvane Heaters

For floor, wall or ceiling installation are made in several types up to 1,421,000 B.T.U. (standard rating). Speed Heaters are made in 10 sizes up to 329,000 B.T.U. (standard rating).

Sturtevant Speed Heaters

REG. U. S. PAT. OFF

DISTRIBUTED BY CRANE CO

What Barber Burner
LEADERSHIP
Means to You

For a score of years, the BARBER MARK on any Gas Burner has been an emblem of dependability. It has been more than that . . . a pedigree of the FITNESS of that burner for its specific use. Every burner unit was INDIVIDUALLY ENGINEERED for its job. Every burner unit had the unique Barber combustion principle. That combination has never been equalled.

Leadership implies obligation. Barber business was never built on merely selling burners. It WAS built on developing and selling burners which are CORRECT for their particular purposes. We can and will assist any reputable gas appliance manufacturer on that kind of problem.

It is a definite and permanent part of Barber policy to "lend a hand". Appliance makers, heating trade, and gas companies know that: we welcome the opportunity to work with you on any gas burner problem.

Write for Illustrated Catalog and Price List on Conversion Burners for Furnaces and Boilers, Burner Units for Gas Appliances, and Gas Pressure Regulators.

THE BARBER GAS BURNER COMPANY

H. M. MANSFIELD, President

3704 Superior Avenue
Cleveland, Ohio

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BARBER BURNERS AND REGULATORS ARE DESIGNED FOR

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BARBER *Automatic* JET GAS BURNERS

Sailing the seven seas without instruments to guide you is dangerous travel. To buy plumbing and heating supplies without regard to the responsibility of the supplier is also a hazardous process. • Buy at the sign of "Jobber Jones" . . . symbol of all reputable plumbing and heating suppliers. Here you will get the best merchandise, accurate information when needed, and in emergencies, service that counts. That's why the wise buyer deals exclusively with the responsible jobber in his community . . . with his "Jobber Jones."

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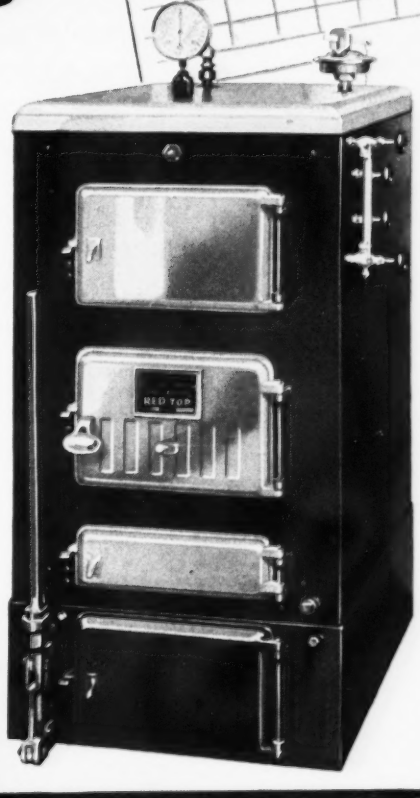
Malleable Iron Fittings Co.

K
MIF

A record of over a generation of selling Capitol Boilers by a heating contractor is not unusual. U. S. has been constantly engaged in the development and manufacture of better heating equipment for more than fifty years . . . has experience and knowledge you can put behind every job you sell. You'll always feel confident when you use Capitol boilers, radiators and specialties. On any job you'll find Capitol products that exactly meet your requirements. Boilers of every type and size. Radiators in standard, ThinTube and other styles. Jointless Fincast convectors and enclosures. Conditioners for radiator heated homes. Warm air furnaces with air conditioning. Attic fans, traps, valves, feeders, and every heating accessory. Write today for complete information about U. S.



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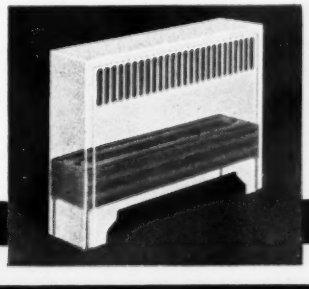
Fincast Convectors have all fins cast in one piece. No joints to loosen or leak. Can be recessed and concealed with modern Capitol enclosures.



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Every Prospect Can Find HIS Water System in the F-M Line

OFFERING something that exactly meets the prospect's needs is a tremendous advantage in selling. There is no problem of talking a prospect into concessions . . . no chance for him to "cool off" while you strive to get what he wants.

You have the exact water system any prospect needs when you handle the Fairbanks-Morse line. Systems complete with F-M electric motor or F-M gasoline engine . . . for deep wells, shallow wells, or any source of water . . . from 200-gallon capacity per hour to 5000-gallon . . . manually controlled or completely automatic . . . simple, minimum-priced systems to the most complete . . . you have everything a prospect can ask in the F-M line.

You have, in addition, the Fairbanks-Morse century-old reputation for quality behind you and the help of consistent national advertising. Leads in your territory are given to you, after preliminary, sales-starting work is done.

Mail the coupon for complete information on the valuable protected F-M dealer franchise.

Complete electric systems from 200 to 5000 gallons per hour. Prices start at . . $49.95

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City ..... *State* .....

You can tell by the *feel* that it's good pipe

BETHLEHEM STEEL

THERE'S a good feel to Bethlehem Steel Pipe when it's cut or threaded—a feel that means, to experienced hands, good, sound pipe. Bethlehem Pipe readily takes the clean, accurate threads that are a sign of soft steel, free from inclusions and hard spots. Bethlehem Pipe is free from scale, inside and out. And above all, Bethlehem Pipe is soundly welded—it is free from pin-hole leaks; free from any danger of splitting or rupturing.

Available through your distributor, in all standard sizes and weights. Either in open-hearth steel or in Beth-Cu-Loy rust-resisting copper-bearing steel.

BETHLEHEM STEEL COMPANY

SERVICE LIKE THIS

is all in our day's work

"Did you fly here?" Work in a Chicago shop, located eight miles from our warehouse, was held up for want of a Tube Cutter. They phoned us, and we got the Cutter there so quickly that the buyer asked our driver if he had used an airplane.

Ordered . . . measured . . . cut . . . delivered . . . in same day. A local concern phoned in the morning, asked us to come out and take some measurements for steel. We made the measurements, returned to our warehouse, corrugated 24 sheets and sheared 12 pieces of steel, delivered the order . . . all in the same day.

Our men were late for supper— but the customer got his order on time. A firm located 200 miles away phoned in at 5:30 for two CB sections. We cut and shipped the order that evening via truck.

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●Whether it's an emergency, or run-of-the-mill order, you can depend on Scully. Our huge stocks are quickly available. We have immense stocks of steel, steel products, copper and brass always on hand in eight warehouses conveniently located. Try us!

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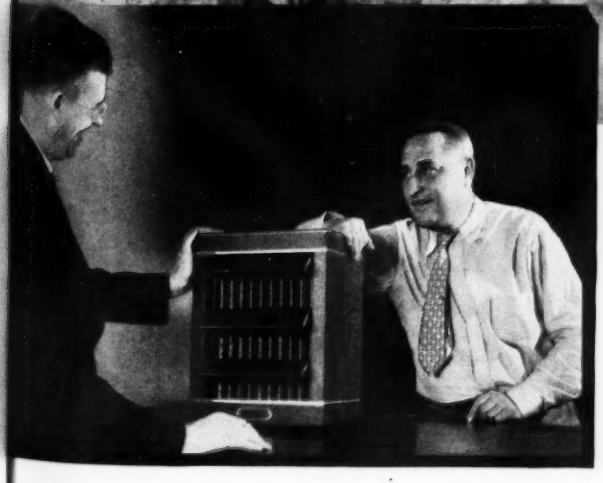
IT WON'T BE LONG NOW!



SELL AMERICAN BLOWER UNIT HEATERS—*NOW!*

● Right now is the time to overhaul heating equipment, replace obsolete heating apparatus and install new equipment. Thousands of industrial plants, stores, service stations, garages and factories are in need of just such a service. American Blower Unit Heaters are ideally suited to do the job quickly and economically. American Blower national advertising with full pages in *LIFE* magazine and large space in metropolitan newspapers will tell this story to your prospects. Cash in now selling Venturafin Unit Heaters—they cost no more than ordinary heaters and give better results.

BACKED BY THE GREATEST national, trade journal, direct mail and newspaper advertising campaign in the Unit Heater industry. Built by the world's greatest heating organization . . . Carried in stock in all principal cities and sold by all the leading jobbing houses. Terms available through Heating and Plumbing Finance Corporation—no down payment—three years to pay. Write for our new free sales plan.

AMERICAN BLOWER CORP.

Division of American Radiator and Standard Sanitary Corp.

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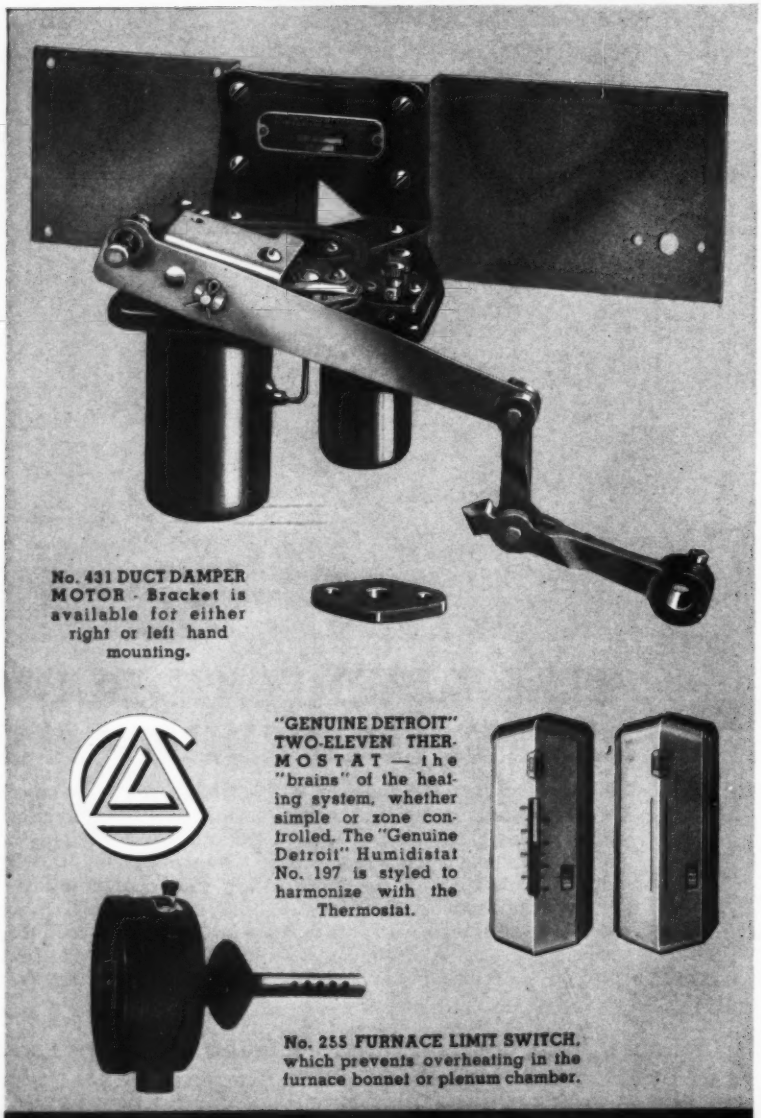
"GENUINE DETROIT"

Zone Control

FOR FORCED AIR SYSTEMS



No. 431 DUCT DAMPER MOTOR - Bracket is available for either right or left hand mounting.

"GENUINE DETROIT" TWO-ELEVEN THERMOSTAT — the "brains" of the heating system, whether simple or zone controlled. The "Genuine Detroit" Humidistat No. 197 is styled to harmonize with the Thermostat.

No. 255 FURNACE LIMIT SWITCH, which prevents overheating in the furnace bonnet or plenum chamber.

DETROIT LUBRICATOR COMPANY

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DIVISION OF AMERICAN RADIATOR & STANDARD SANITARY CORPORATION

Canadian Representative—RAILWAY AND ENGINEERING SPECIALTIES LIMITED. Montreal. Toronto. Winnipeg

Residential buildings of the rambling type, those having critical exposures or definite divisions between living quarters, servants' quarters, etc., present a serious warm air heating problem.

It is often impossible to hold uniform temperature throughout the building with a single thermostat. One part will overheat before another gets warm, and, as wind direction is likely to vary the condition from day to day, no amount of balancing of ducts will cure the trouble.

This type of structure needs "Genuine Detroit" Zone Control. The building is divided into two or more zones with a thermostat controlling each. A main duct with branches leads to each zone. Each thermostat controls a damper in its duct. When a thermostat calls for heat in its zone, it opens the governing damper, which in turn operates the main heating unit. Dampers to zones not requiring heat remain closed, though the heating unit does not stop until all zones are satisfied.

As thermostats are independent, *different* temperatures may also be maintained in different zones, if desired. Also, if day and night thermostats are used, one or more zones may be changed to day or night temperature independently of the others.

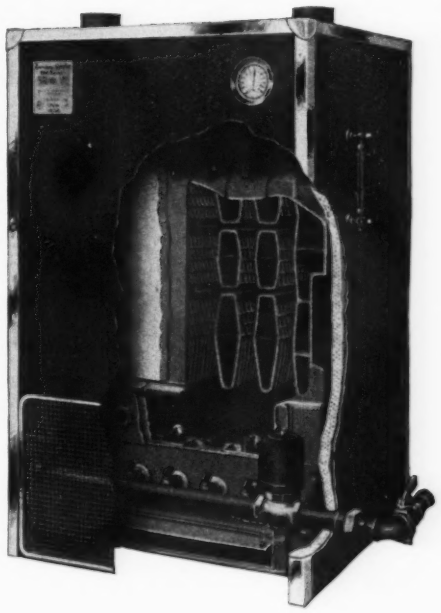
Each zone damper is actuated by a "Genuine Detroit" No. 431 Motor Unit. This is entirely noiseless, so is regularly mounted on the duct without danger of objectionable noise being telegraphed along the duct to rooms above. A No. 255 Furnace Limit Switch prevents overheating in the plenum chamber to which zone ducts connect.

Write for Bulletin 66 on the "Genuine Detroit" Zone Control. It is a thoroughly sound answer to the problem of heating many types of houses satisfactorily with warm air.

CAN Gas Heat Be CANNED?

Yes—

Burnham CANS It



YOU ask — How much can a Burnham Gas Boiler can? And what is meant by canning, anyway?

We reply—A Burnham Gas Boiler cans 7%. That 7% canned is the same 7% that's a total heat loss in other gas boilers. Burnham cans it, by keeping it stored in the boiler, instead of losing it by air supply cooling.

Here's how—All gas boilers as you know, must have an air supply to give the right combustion. When the burner is on, *it's all right.* But when off, *it's all wrong.* That same air that helped make heat, then promptly starts in cooling it all.

Not so with the Burnham. Its heat canner prevents it. No other boiler has its sure-acting, automatic heat canning device. That's why the Burnham gives at least 7% additional seasonal economy beyond the next best ones.

It is that extra 7% efficiency that made the Burnham Gas Boiler sales stack up so high in the last 12 months.

SEND FOR CATALOG.

GET THE FULL FACTS ON THE BURNHAM 7% EXTRA CANNED HEAT.

SEE FOR YOURSELF.

BURNHAM BOILER CORPORATION

Irvington, New York
Zanesville, Ohio

Foreign Export Department, 116 Broad Street, New York

Burnham Boilers

an all-purpose Bronze Rod

WITH Oxweld No. 25 M. Bronze Welding Rod you can make strong welds in steel, cast iron, malleable iron, bronze, brass and various copper alloys. This rod is especially useful for welding dissimilar metals and in welding similar metals where minimum heat application is required. It melts rapidly, flows freely, "tins" easily and solidifies quickly. The deposited weld metal is non-porous and is about 40 per cent higher in tensile strength and shear strength than welds made with other bronze welding rods.

Oxweld No. 25 M. is widely employed for building up worn surfaces—particularly on steel, cast iron and manganese bronze. The hardness, soundness and easy machinability of its deposited weld metal are important requisites for this type of work.

The Oxweld line of oxy-acetylene welding rods includes a rod for every purpose. Write the nearest Linde office for further information and the booklet "Oxweld Welding Rod". The Linde Air Products Company, Unit of Union Carbide and Carbon Corporation, New York and principal cities.

Everything for Oxy-Acetylene Welding and Cutting

LINDE OXYGEN • PREST-O-LITE ACETYLENE • OXWELD APPARATUS AND SUPPLIES FROM UCC LINDE UNION CARBIDE

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PRESSURE REGULATING AND SAFETY DEVICES

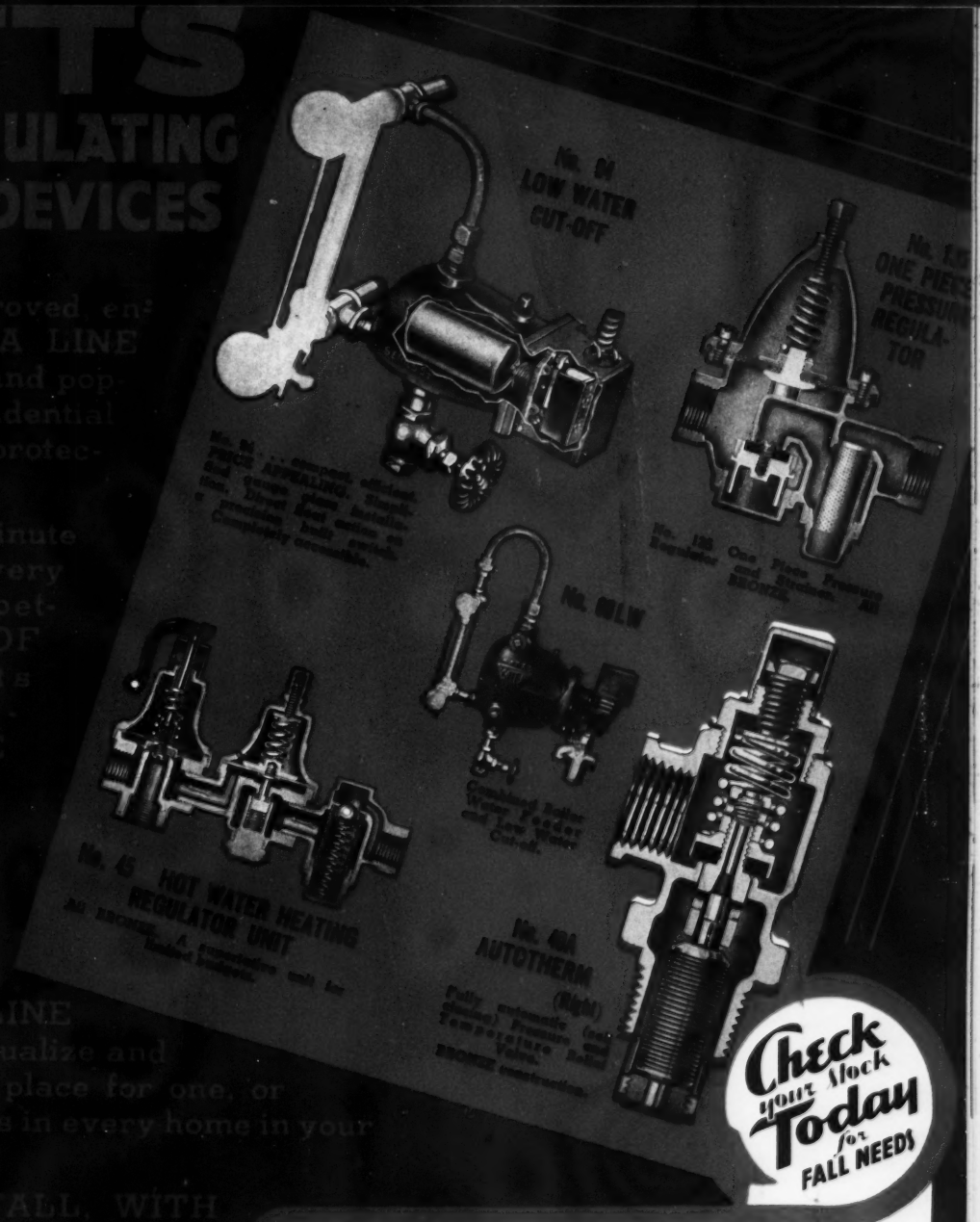
offer the latest, proved engineering features. A LINE studded with needed and popular numbers that residential and public building protection demands.

With up-to-the-minute engineering, with every number priced competitively, yet BUILT OF BRONZE. Watts products stand supreme . . . the LINE that is largest, most complete and most logical for you to handle this Fall.

At the right are shown five feature numbers of the Watts LINE as you read you visualize and KNOW that there is a place for one, or more, of these products in every home in your sales area.

CASH IN THIS FALL WITH WATTS. FOR WATTS PRODUCTS ARE PROFITABLE TO HANDLE AND BECAUSE OF THEIR QUALITY, EFFICIENCY AND SERVICE PROTECT THOSE WHO SELL AND USE THEM.

Send, or ask your jobber for this latest Watts catalogue No. 37. Also No. 37A . . . condensed catalogue and price sheet.



Check your Stock Today for FALL NEEDS

- Relief Valves
- Pressure Regulators
- Low Water Cut-offs
- Boiler Water Feeders
- Hot Water Heating Systems
- Hot Water Heating Regulators

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REGULATOR COMPANY

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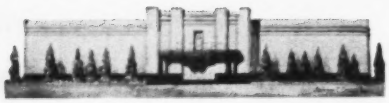
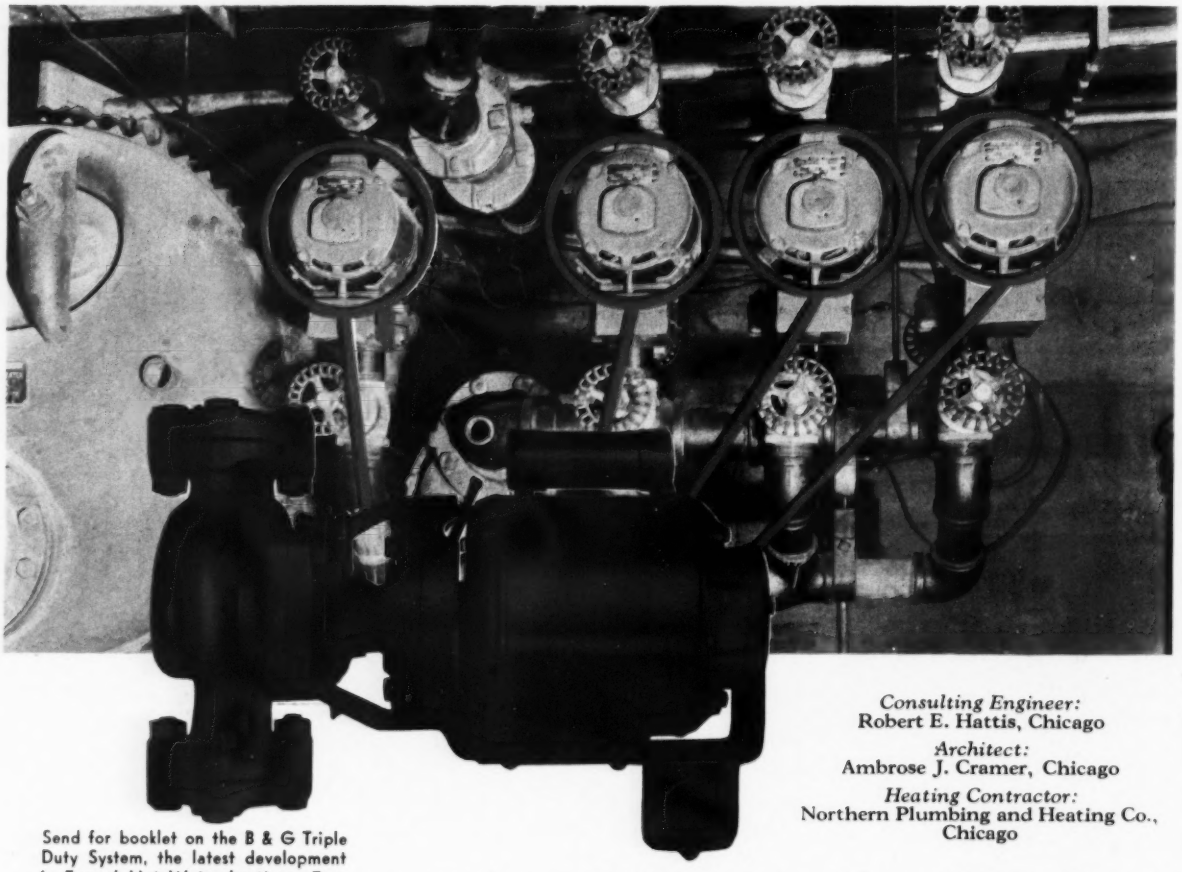


ULTRA-MODERN WINDOWLESS BUILDING CHOOSES THE

LITTLE PUMP WITH THE BIG CAPACITY

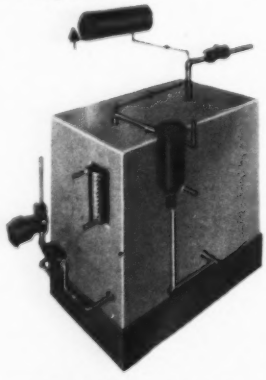


Consulting Engineer:
Robert E. Hattis, Chicago

Architect:
Ambrose J. Cramer, Chicago

Heating Contractor:
Northern Plumbing and Heating Co., Chicago

Send for booklet on the B & G Triple Duty System, the latest development in Forced Hot Water heating. Featured by small pipe sizes, year around Domestic Hot Water, automatic modulation of heat supply and outstanding economy.



This battery of B & G Pumps is part of the conditioning equipment installed in the National Aluminate Corporation's new *windowless* building. Sixty-three conditioned spaces are served by ducts, each with its individual heating and cooling coil. The B & G Pumps circulate hot water from a heat exchanger to the duct heating coils.

When you have a water circulating job to do—whether for heating or cooling—look first at all the features offered by the B & G Circulating Pump. They will make clear very definitely why this pump was selected above all others for the installation shown above.

Besides a greater *actual* capacity, size for size, the B & G Circulating Pump has such structural advantages as a patented water-tight seal (no stuffing box)—*oil* instead of grease-cup lubrication—rubber mountings—noiseless capacitor motor—and non-breakable universal joint. All combine to give thoroughly dependable, quiet operation. Send today for catalog of B & G Hot Water Heating Specialties.

BELL & GOSSETT CO.

B&G

3000 WALLACE ST., CHICAGO

Canadian Licensee: S. A. Armstrong Ltd., 720 Bathurst St., Toronto, Can.

The three C's of FITZGIBBONS OIL-EIGHTY superiority

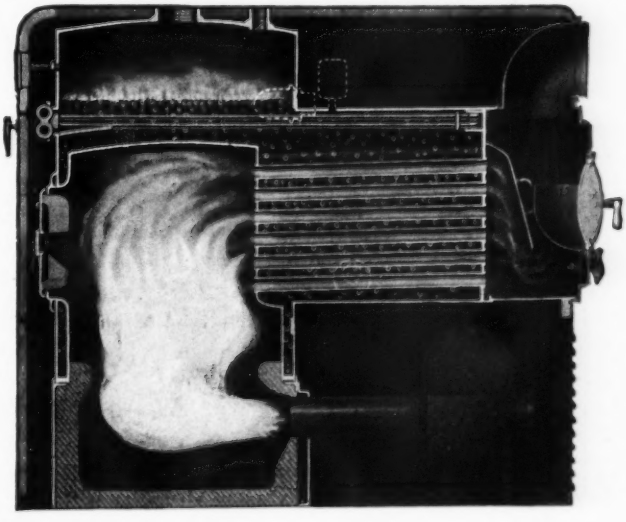
CONSTRUCTION
COMBUSTION
CIRCULATION

#1

The "three C's" constitute a yard stick for measuring the worth of any boiler, because every feature contributing to performance, durability and convenience, comes under one or the other of these three general heads. This is No. 1 of a series applying this yard stick to the Fitzgibbons OIL-EIGHTY Automatic. It deals with CONSTRUCTION. No. 2, COMBUSTION, will appear in September and No. 3, CIRCULATION, in October. The complete series makes clear the *superiority* of this outstanding boiler — a superiority evidenced by the fact that in 1936, *35% of the steel boiler sales of dealers in 42 key markets were* OIL-EIGHTYS.

CONSTRUCTION

- OIL-EIGHTY superiority begins with STEEL construction. Steel permits of a design that satisfies every requirement of oil burning and attains highest efficiency.
- Plate and tubes all made of COPPER-STEEL having 2½ times the rust resistance of ordinary steel. Electrically welded and insurance company tested at factory to A. S. M. E. Standards, the OIL-EIGHTY is a leak-proof, crack-proof boiler.
- Uniform metal thickness, *attainable only with steel*, plus the greater strength of steel, permitting reduced cross-section, guarantees more rapid heat transfer, quicker response to burner operation, corresponding savings in fuel.
- One-piece construction eliminates section assembly on the job. Bare boiler in the largest size will pass through a 30" doorway.
- Doors and door frames are machine ground and gasketed, providing a gas-tight fit.
- Submerged "copper-coils" furnish domestic hot water instantaneously and tanklessly—summer and winter.
- The single pass of straight, small-diameter, *unobstructed* tubes, accessible through large doors at front and rear, make the OIL-EIGHTY the easiest of all boilers to clean.
- Specially designed steel base adaptable to either rotary or pressure type gun burners.
- Selected locations for all oil burner controls. Low water cut-off standard equipment with steam boilers.
- The attractive streamline Steel Jacket, heavily insulated, is "tailored to fit." Split panels permit assembly after boiler is piped. Ready access to burner and controls through removable panels.
- Jacket design permits of complete enclosure of boiler and oil burner without extension, in space no larger than that occupied by the boiler alone.
- From raw materials to finished product, the CONSTRUCTION of the OIL-EIGHTY Automatic reflects the will to build the best boiler, supplemented by the skill and "know how" that comes from 51 years of uninterrupted steel boiler building.



SELL

this outstanding boiler with your burner . . .

Write for the OIL-EIGHTY Catalog and details about the Fitzgibbons Authorized Dealer Franchise. You'll find it easy and pleasant to do business with Fitzgibbons.

MOST ECONOMICAL IN FUEL — 1888 — THE FITZGIBBONS BOILER

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General Offices: ARCHITECTS BLDG., 101 PARK AVE., NEW YORK, N. Y.

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OBI — APPROVED — OIL BURNER INSTITUTE

Satisfaction plus cash dividends

Board Will Save On Cost Of Water

Special Valves Installed in High School Will Be Used Also at Other Buildings

Two notable instances of economy in conducting affairs of the public schools were brought out Wednesday night at a meeting of the Board of Education. One was a reduction of the High School water bill from $315.32 to $67.38 for a quarter period—within a few dollars of $1,000 per year saved on one school alone.

The saving was effected through Commissioner Joseph Galvanek who had installed special valves controlling the automatic flush system. A further saving will be made in the other school buildings where similar improvements are to be made.

Carteret, N. J., Press
Friday, Jan. 15, 1937

In the clipping reproduced above, the valves installed were, of course, Sloan Flush Valves.

Sloan Valves installed in the Liverpool Building, San Francisco, about two years ago are saving $20 a month on the water bill.

46 Sloan Valves in the Royal Insurance Building, San Francisco, save $18 worth of water a month.

The Normandie Apartments in Seattle replaced 85 ( ) Valves with Sloan Star Valves in 1931. Since that time the former $95 a month water bill has averaged but $30 a month.

In the Belleville Township High School (Illinois), 26 Sloan Valves were installed in 1932. Former water bills of $180 to $195 a month have dropped to $90 or $95 a month.

In Worcester, Massachusetts, two-thirds of the water cost of the Convenience Station in the Commons has been eliminated since the installation of Sloan Valves.

In the Lee Street School, also in Worcester, 50% of the water cost has been saved since installing Sloan Valves.

SLOAN VALVE CO. • Chicago

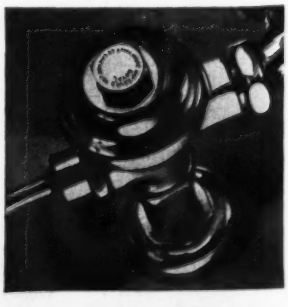
(The figures given above for water savings are taken from letters in our files. Photostat copies will be furnished on request.)

1. Maximum water savings cannot be obtained if the operator can cause a long or short flush. Sloan Flush Valves cannot be held open to waste water.

2. Sloan Flush Valves are self-cleaning, preventing waste of water from clogged valves failing to shut off.

3. Sloan Flush Valves will give efficient service on any pressure that will operate the fixture.

4. Sloan Flush Valves are the only ones to combine accurate regulation with the non-hold-open feature.



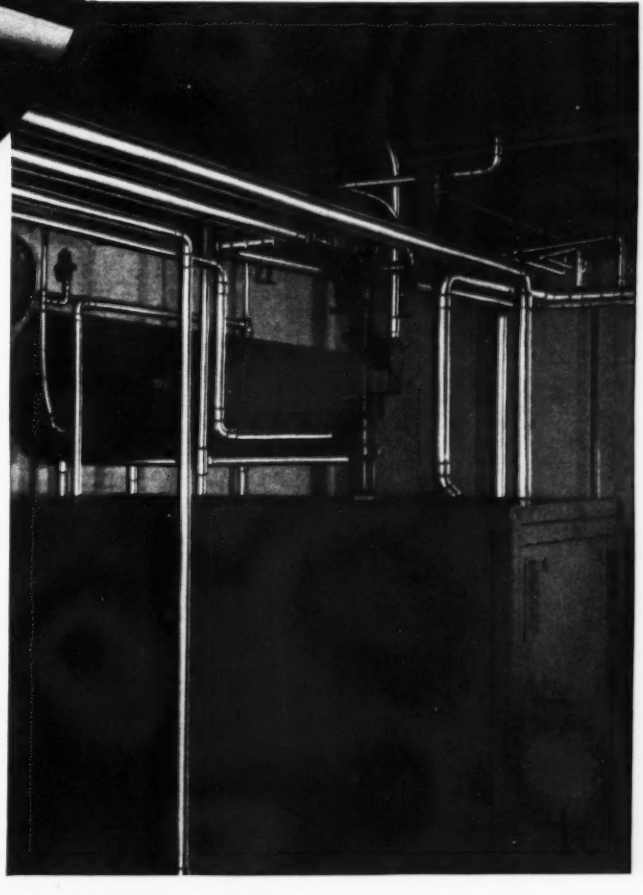
SLOAN FLUSH VALVES

Four Important Advantages

of Copper Tubes for heating lines

Anaconda Copper Tubes are phosphorus — deoxidized to increase corrosion-resistance and improve physical properties.
Anaconda Fittings have deep cups to give long, strong bonds and more support for tubes.

Anaconda Copper Tubes and Fittings offer far better value than rustable piping for hot water and low pressure steam heating installations; also for oil burner lines. Strengthen your reputation by using copper for neater, more efficient, longer-lasting jobs.



1 Copper Tubes reduce resistance to flow. Smooth interior surfaces permit 10% to 15% greater velocity of circulation with the same head.

2 *Smaller size* tubes can be used than are required with rustable pipe.

3 They reduce heat losses materially. Lessen the need of insulation.

4 *Cost is only a little more than rustable piping!* And Anaconda Copper Tubes and Fittings are *rust-proof*... a "lifetime" investment.

• • •

The complete Anaconda line of tubes and fittings in sizes from ⅛″ to 8″ is readily obtainable from leading supply houses. 37371

Anaconda DEOXIDIZED Copper Tubes

ANACONDA

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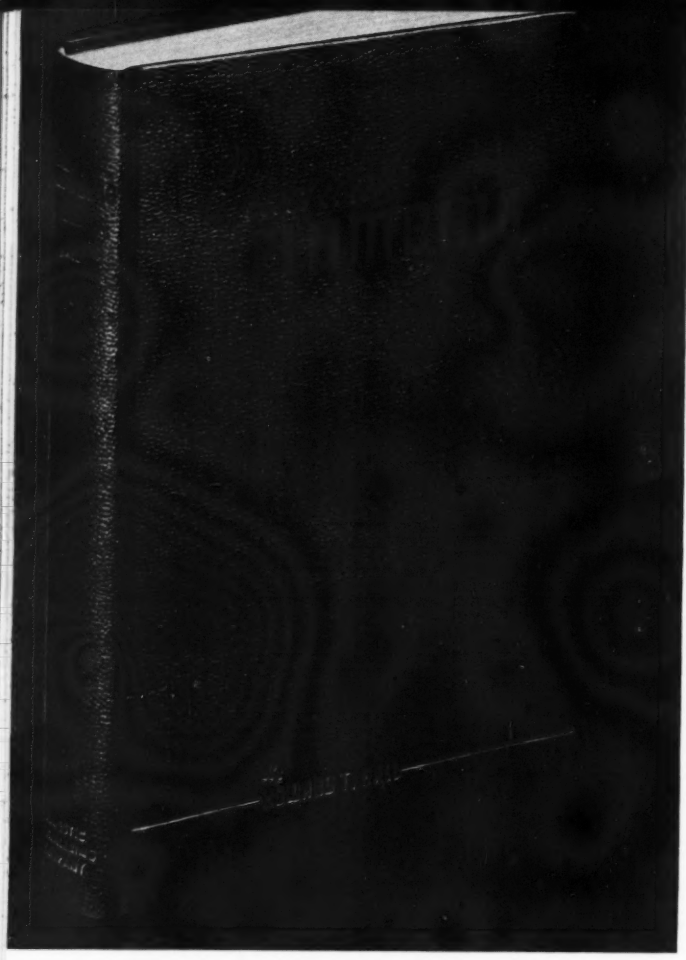

TO THE Point!

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AVOID COSTLY MISTAKES

PRACTICALLY, thoroughly, authoritatively, this book covers every phase of modern plumbing. It's a book which will enable you to eliminate guesswork and the element of chance from your plumbing installations. It permits you to KNOW THE FACTS before you undertake any kind of plumbing job. With its aid you avoid costly, dangerous mistakes.

PRACTICAL PLUMBING takes you directly TO THE POINT on every subject it covers. Only when necessary to demonstrate the origin of a common practice is theory resorted to. You'll find this book as interesting to read as it is convenient to refer to. Interspersed in its 365 pages of meaty, authentically informative material you'll find a large number of diagrams, charts, tables and illustrations to simplify the use of this book. The alphabetical, ready reference index in the back of the book makes for even greater convenience when some particular plumbing problem is under consideration.

Once you have your copy of PRACTICAL PLUMBING you'll consider it an important business asset . . . a book you can scarcely afford to be without. At $3.50, you'll agree it's a wise investment and an attractive addition to your trade library. Better order yours today. Use the coupon.

Practical

COVERS EVERY PHASE OF PLUMBING

PLUMBING

ONLY **$3.50** POSTPAID

THERE'S ALWAYS ONE THAT'S PERFECT

In baseball it's the PERFECT *slide home that scores a run!*

IN HEATING IT'S THE ARCO PERFECT VENTING SYSTEM

BANISH "uneven heating" on one-pipe steam jobs—with the Arco Perfect Venting System. It gives you absolute control over venting...makes every radiator heat equally...evenly...quickly...turns automatic heating into real automatic comfort.

The Arco Perfect Venting System is composed of two easily installed valves. For the mains, the Arco Hurivent gives rapid venting. On each radiator, the Ideal Variport permits you to control venting rates—to *balance heating*—with one simple adjustment.

Give your customers heating that provides maximum comfort with the Arco Perfect Venting System. And get extra business by "selling" this system to customers for whom you've installed one-pipe steam jobs in the past. You'll build good-will, good sales, good profits. Ask your jobber for full facts or write.

ARCO HURIVENT

No. 861 for steam — No. 862 for vacuum

A full half inch port vents main lines quickly . . . silently . . . and without leaking.

IDEAL VARIPORT

No. 5000 for steam — No. 5150 for vacuum

Adjustable air valve for radiators. Has wide range of venting rates. Removable cap protects adjustments.

ACCESSORIES DIVISION

AMERICAN RADIATOR COMPANY

DIVISION OF AMERICAN RADIATOR & STANDARD SANITARY CORPORATION

40 West 40th Street, New York, N. Y.

THIS MONTH BUY AN ARCO BOILER FURNACE CLEANER. IT GETS YOU INTO THE BASEMENT—HOLDS OLD CUSTOMERS—MAKES NEW ONES.

Arco Accessories

MAKE ANY HEATING SYSTEM BETTER

Accessories Division
AMERICAN RADIATOR COMPANY
40 West 40th Street, New York, N. Y.

Please send me at once the following new bulletins on IDEAL-ARCO ACCESSORIES. (Check those wanted.)

- ☐ Radiator Valves
- ☐ Regulators and Controls
- ☐ Air, Vacuum and Vent Valves
- ☐ H. A. Thrush & Co.—McDonnell-Miller Co. products
- ☐ Thermometers-Gauges Misc. Accessories
- ☐ Heaters for Domestic Hot Water

NAME.....

ADDRESS..... STATE..... DES

CITY.....

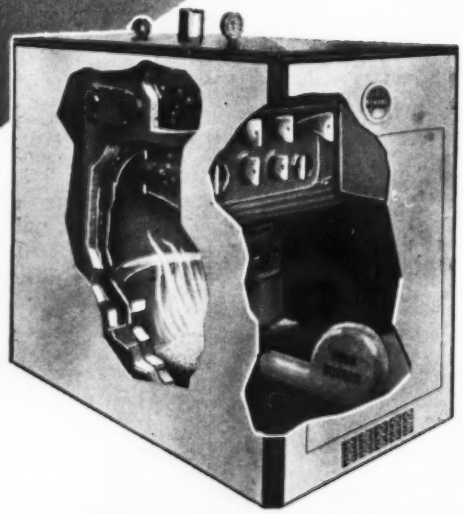
BIG, HIGH FIREBOXES

...Plenty of space for COMPLETE COMBUSTION

Look up into the firebox of any Kewanee and one reason for their unusual fuel economy is evident... *big, high fireboxes.*

KEWANEE

ROUND "R" STEEL BOILERS



●Kewanee Round "R" in Regal Jacket, completely enclosing Boiler and Burner...also in trim round jackets ...as well as Smartline square jackets.

It's easy to demonstrate why. Drop a lighted match in a large bottle, and a small one . . . then cap both the bottles quickly. The match in the large bottle will burn ***completely,*** that in the small bottle only partially. Burning fuel must have air . . . and ***space to mix with air.***

With automatic firing (whether stoker, oil or gas burner) generous combustion space is extra important. For any forced draft creates a rapid fire, and ample space must be provided for fuel to quickly unite with oxygen or much of it will go up the stack unburned.

Even the smallest Kewanee Boilers have big, high combustion space ... another reason why they are ***ideal team-mates for any automatic firing equipment.***

There is a type and size Kewanee for every home. Get the facts of their low cost, economy of operation, and easy financing plan.

KEWANEE BOILER CORPORATION
KEWANEE, ILLINOIS
Eastern District Office: 37 West 39th Street, New York City
BRANCHES IN 61 CITIES
division American Radiator & Standard Sanitary Corporation

USE COPPER IN HEATING

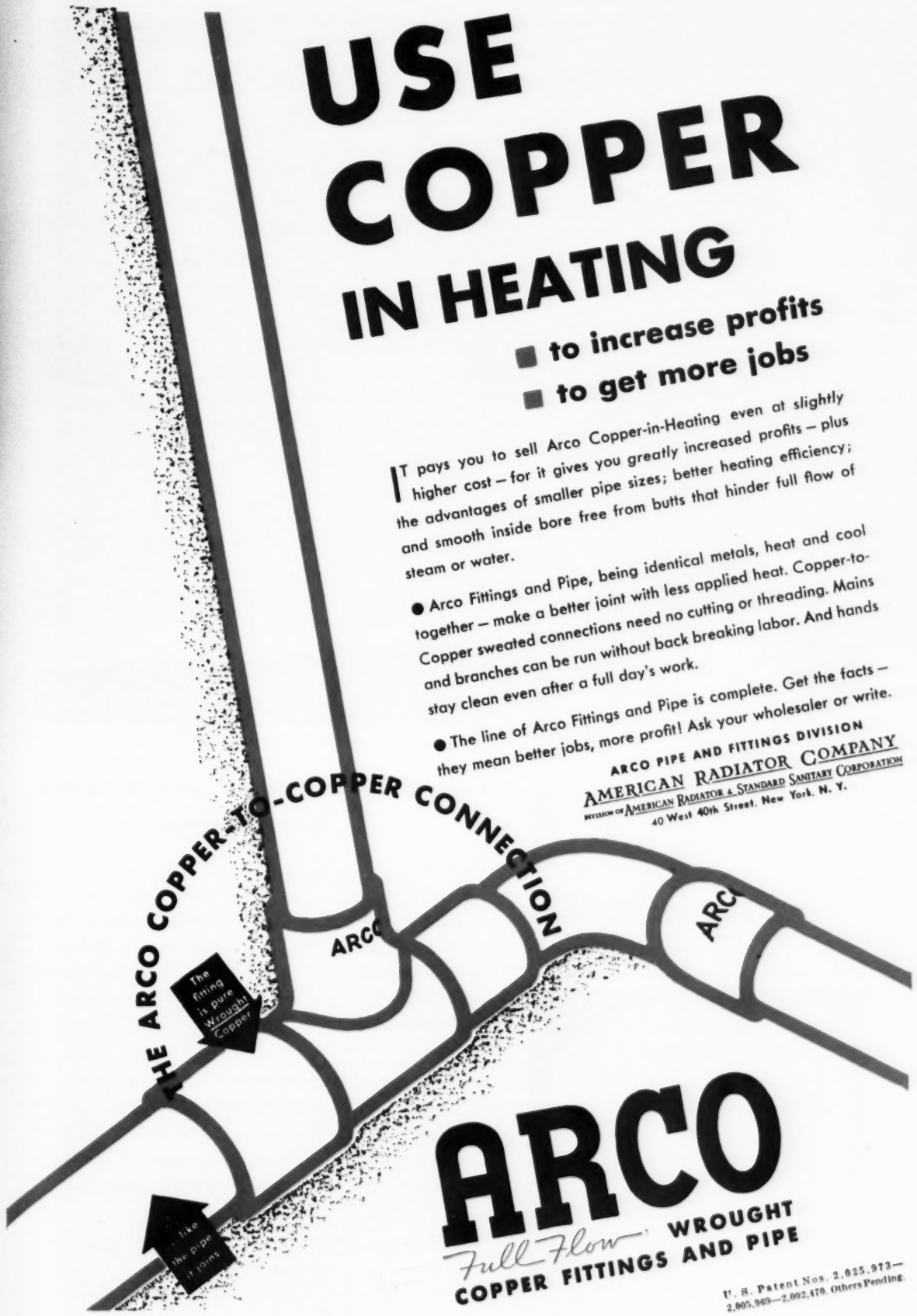
■ to increase profits
■ to get more jobs

IT pays you to sell Arco Copper-in-Heating even at slightly higher cost — for it gives you greatly increased profits — plus the advantages of smaller pipe sizes; better heating efficiency; and smooth inside bore free from butts that hinder full flow of steam or water.

● Arco Fittings and Pipe, being identical metals, heat and cool together — make a better joint with less applied heat. Copper-to-Copper sweated connections need no cutting or threading. Mains and branches can be run without back breaking labor. And hands stay clean even after a full day's work.

● The line of Arco Fittings and Pipe is complete. Get the facts — they mean better jobs, more profit! Ask your wholesaler or write.

ARCO PIPE AND FITTINGS DIVISION
AMERICAN RADIATOR COMPANY
DIVISION OF AMERICAN RADIATOR & STANDARD SANITARY CORPORATION
40 West 40th Street, New York, N. Y.



ARCO
Full Flow WROUGHT
COPPER FITTINGS AND PIPE

U. S. Patent Nos. 2,025,973—2,005,969—2,002,470. Others Pending.

(above: Hostess P6535, Cabinet No. 20)

(Above: P 6552, Cabinet No. 23: sink on left) (P 6550, Cabinet No. 22: sink on right) Either cabinet has two drawers, one large compartment, one smaller compartment.

(P 6575, Cabinet No. 25) Double compartment sink. Cabinet is a single compartment with 2 doors. All sinks are 36" floor to rim.

for every kitchen...every home ...every purse

THE FEATURES that make the 60" Hostess Sink a best seller for Master Plumbers are now incorporated into three new, smaller, size 42" models. The handy shelf . . . the swinging spout with transfer valve . . . the spray hose, convenient yet out of the way . . . the roomy cabinet space beneath . . . the low back to fit under window . . . the spacious sink compartment . . . here they are again in three new models.

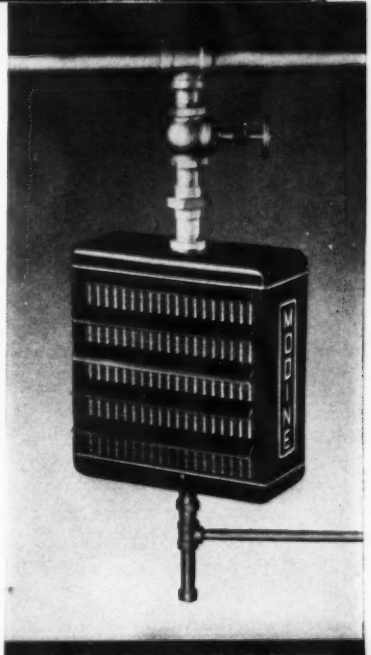
All four models of the Hostess Sink are made to tie in with standardized wall cabinet installations. All four give you a complete sink and cabinet unit to fit almost any kitchen, any wall space, any pocketbook. Tell your customers about these new "Standard" Hostess Sinks.

Standard Sanitary Mfg. Co.
PITTSBURGH, PA.
Division of AMERICAN RADIATOR & STANDARD SANITARY CORPORATION

Copyright July 1937, Standard Sanitary Mfg. Co.

"All men are created equal"

BUT UNIT HEATERS ARE NOT



● Among unit heaters there *is* class distinction. And Modine is tops. It has no superior—in heating performance . . . fuel economy . . . flexibility of operation . . . appearance. And, more Modines are being sold than any other propeller type unit heater. But that's only one Modine profit angle.

Only pioneer heat transfer specialists like Modine could develop a unit heater so outstandingly advanced in design and improved in construction—a unit with so many exclusive, sales-making advantages.

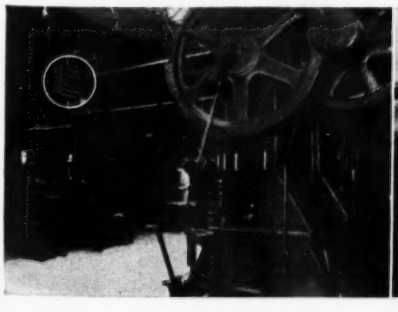
The Modine condenser is *all copper*. Only Modine has *expansion bend* construction, permitting condenser tubes to expand *individually*, eliminating leaks. Only Modine has *velocity generators* . . . giving greater heat throw without increasing power requirements. Another Modine-patented feature, *direct-from-supply-line suspension*, saves you time, labor, and money in installing.

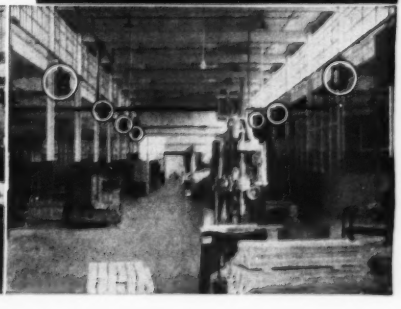
And only a large-scale organization like Modine can give you so much real sales and engineering help. There's a Modine expert right in your locality. *Write* for his name and address . . . and for Catalog 236.

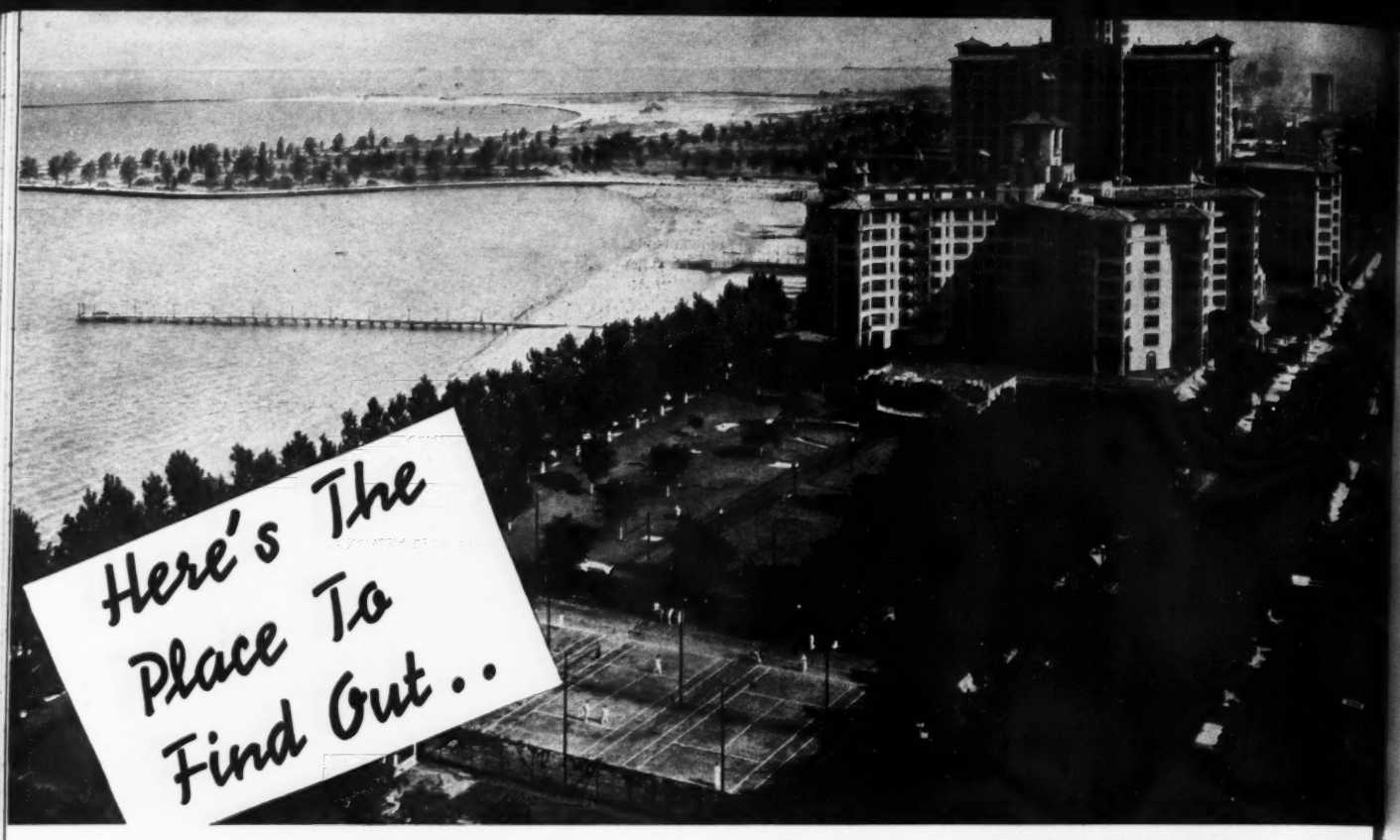
MODINE MANUFACTURING COMPANY
1722 RACINE STREET • RACINE, WISCONSIN

HEATING, COOLING AND AIR CONDITIONING EQUIPMENT FOR INDUSTRIAL, COMMERCIAL AND RESIDENTIAL APPLICATION

MODINE UNIT HEATERS







This advertisement prepared by Commercial Advertising Agency Inc., Chicag

How Your Advertising Department Can Do A Bigger Job

Is your Advertising Department prepared to meet the challenge of today's complex conditions . . . to live up to its new opportunities . . . to assume broader responsibilities? Has it the training, the vision and the courage to do more than a routine job?

How your Advertising Department can do a bigger job will be the principal theme of the 15th Annual NIAA Industrial Advertising and Sales Promotion Conference and Exposition at the Edgewater Beach Hotel, Chicago, September 22 to 24, 1937. There will be talks by nationally known industrial leaders . . . by sales executives . . . and advertising directors. There will be speaking sessions, round table discussions, clinics on numerous specific topics, extensive exhibits of advertising and sales promotion materials, and rare opportunities for person to person exchange of ideas.

Are You a Top Executive?

This conference offers you a composite of management's experience with respect to industrial marketing trends . . . distribution practice . . . and directing Advertising and Sales Promotion Departments not only to sell merchandise, but also to do the urgent job of improving public relations. It will be a highly profitable investment for you to attend with your Sales Manager and your Advertising Manager.

Are You a Sales Director?

In addition to the foregoing, the NIAA conference offers you information on the most effective sales promotion policies and practices . . . the coordination of advertising with personal sales activities.

Are you an Advertising Manager?

From this conference, you will get inspiration . . . a broader viewpoint . . . a new vision of your opportunities, as well as "brass tack" information about various details of advertising and sales promotion.

An Ideal Convention Spot

The Edgewater Beach Hotel, the convention site illustrated above on the shores of Lake Michigan, offers unparalleled opportunities for fun and recreation . . . bathing, an abbreviated golf course, night clubs, etc. This conference, sponsored by the National Industrial Advertisers Association, will afford ample opportunity for entertainment, as well as work. *Mail Coupon Below.*

NIAA

• • 15TH ANNUAL ADVERTISING AND SALES PROMOTION CONFERENCE AND EXPOSITION

SEPTEMBER 22, 23, 24, 1937

EDGEWATER BEACH HOTEL, CHICAGO

MR. H. D. PAYNE, Chicago Molded Products Co.
2145 W. Walnut St., Chicago, Ill.

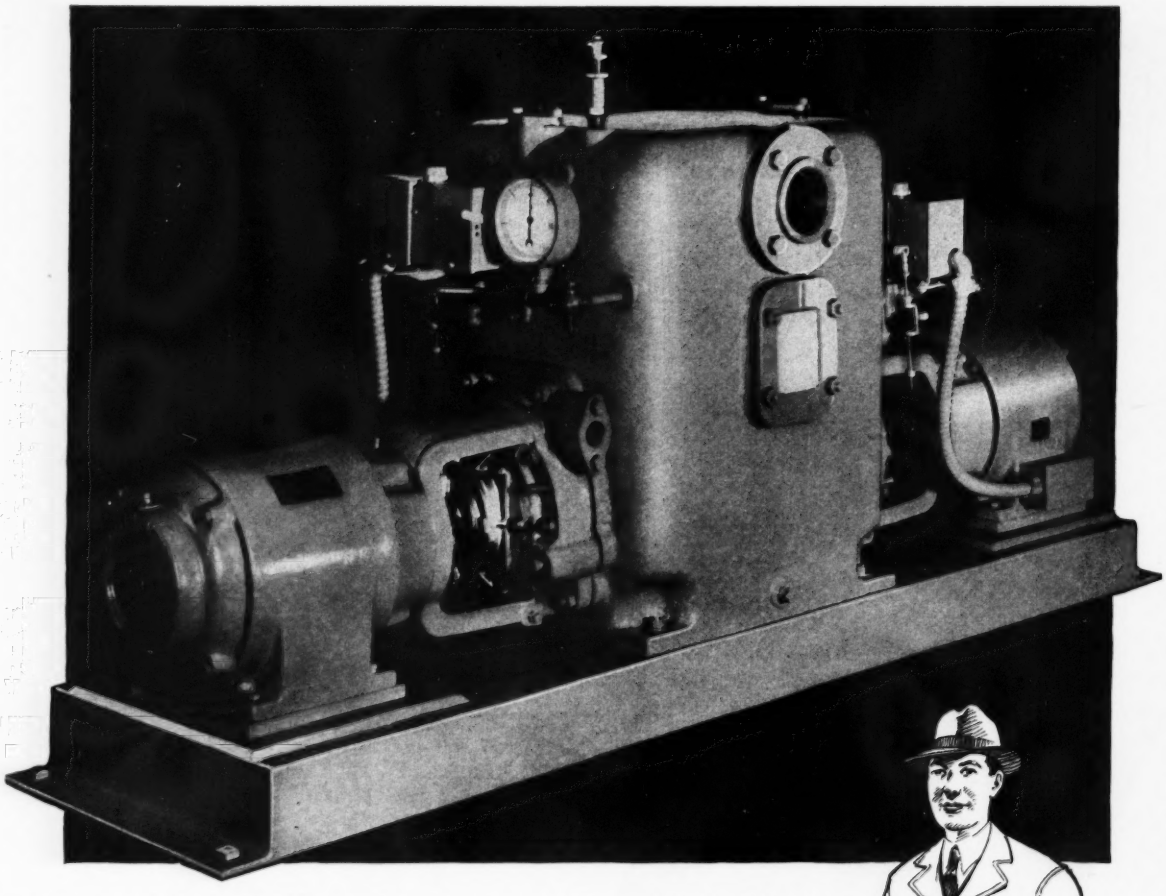
Please send further information about the program of the 1937 Co[nference] and Exposition, sponsored by the National Industrial Advertisers Asso[ciation].

Name.....

Company.....

Address.....

The Prest-O-Weld W-105A Outfit
... includes the standard Prest-O-Weld blowpipe for general welding and heavy heating operations, oxygen and acetylene regulators, hose and other equipment as illustrated here. It will pay you to inspect this outfit at your jobber's, and notice especially the "10-second" Detachable Valve Body—an exclusive Prest-O-Weld feature.
THE LINDE AIR PRODUCTS COMPANY
Unit of Union Carbide and Carbon Corporation
NEW YORK AND UCC PRINCIPAL CITIES
PREST-O-WELD
WELDING AND CUTTING APPARATUS
PRODUCTS OF A UNIT OF
UCC
UNION CARBIDE AND CARBON CORPORATION
A General Duty Welding Outfit
for $55.00
*Price slightly higher west of the Rocky Mountains



THE HEATING PUMP WITH CERTIFIED PERFORMANCE

A Jennings Return Line Vacuum Heating Pump may be installed with the absolute assurance that it is of the proper capacity to keep your heating system at top-notch efficiency.

For the actual working capacity of your Jennings Pump is determined by careful tests under working conditions, and with the actual motor that goes on your job, regardless of current characteristics. Every Jennings Pump has to deliver full rated capacity of air and water simultaneously before it is released.

The Jennings Heating Pump has everything in the way of safety, convenience, and real dollar saving economy that years of experience as leading heating pump manufacturers have enabled us to put into it. Quality is backed by an unchallenged reputation, and satisfactory performance is assured by a nation-wide network of Sales and Service offices.

THE NASH ENGINEERING COMPANY

SOUTH NORWALK, CONNECTICUT, U. S. A.

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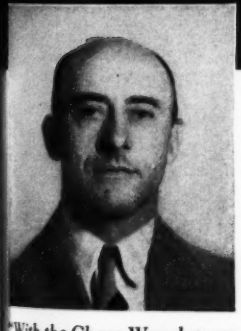


"With the Chase Warehouses carrying a wide range of sizes of copper tube and fittings, the Frontier Water & Steam Supply Company is able to give their plumbing customers better service. If we need ten or one hundred more fittings to fill a rush order, we can get them immediately from the Chase warehouse stocks."
—Robert F. Seiffert, Jr.

AT YOUR JOBBER'S SERVICE

Eighteen Chase Warehouses are "just around the corner" from your jobber when it comes to quick delivery of Chase Brass and Copper Plumbing Products. Whether it be an odd size fitting or enough copper tube for the whole job, Chase has it *in stock!* For quick delivery ask your jobber to "get it from Chase".

CHASE

BRASS AND COPPER

CHASE

Brass Pipe
Copper Tube
Sweat & Flared Fittings
Plumbing Supplies
Copper Roofing Products

CHASE BRASS & COPPER CO.
—Incorporated—
Subsidiary of Kennecott Copper Corporation
Waterbury Connecticut

Modern Merchandising

Domestic Engineering Plumbing and Heating Catalog-Directory conforms to the every need of Wholesalers and Contractor-Dealers by incorporating the following features:

Manufacturers' Catalog Section . . . containing up-to-the-minute specifications and descriptive material of leading Manufacturers of Plumbing and Heating Products.

Tables and Rules Section . . . 52 pages of standard technical reference data.

Classified Directory Section . . . complete alphabetical listing of Plumbing and Heating products followed by the names of Manufacturers who make each product, and the trade names.

Name and Address Section . . . lists virtually every Manufacturer in the Plumbing and Heating Industry together with their addresses.

The many Manufacturers who placed their catalog material in the 1937 Domestic Engineering Plumbing and Heating Catalog-Directory and Mid-Year Supplement, whom we have listed on the adjoining page, foresaw the increasing usefulness of these simplified purchasing guides and their acceptance in buying centers throughout the country. Many hundreds of letters have been sent to us by leading Wholesalers and Contractor-Dealers throughout the Plumbing and Heating industry commenting on the usefulness of the Big Orange Book and its 1120 pages of purchasing and specifying data. Some of these comments are listed on this page.

DOMESTIC ENGINEERING COMPANY

Catalog-Directory Department

1900 Prairie Avenue — Chicago, Illinois

Carries the good will and prestige of a specialized group of potential customers.

Accepted and recognized by the Trade as rendering a valuable service to Manufacturer—Wholesaler—Contractor-Dealer.

Twice-a-year service for your catalogue literature—compiled and distributed direct to the Buyer.

Always instantly accessible by being within arm's reach—thereby Making Your Product Easy to Buy.

Least expensive. Our Year 'Round Catalog Service is economical for both small and large manufacturers.

Occupies a prominent place at that all-important moment—when an order or specification is being written.

Guarantees a no-waste distribution of your catalog material.

SERVICE

Why We Use the CATALOG DIRECTORY

The Wholesalers Say...

"We recommend this Directory as being essential to every purchaser of Plumbing and Heating material." Philadelphia, Pa.

"This is more than a catalog and directory; it may well be classed as an able assistant to any Plumbing and Heating supplies buyer."
Atchison, Kan.

"For a number of years now, we have used this Catalog for practically all of the information we require in connection with our purchase orders, and we find it an invaluable reference book that we could scarcely get along without." Indianapolis, Ind.

The Contractor-Dealers Say...

"I have so valued the Catalog that I have retained all of the previous issues. . . ."
New York City.

"We think that every Plumbing, Heating and Ventilating contractor should have your Catalog because it has every bit of information they need." Columbus, Ohio.

". . . we think that it is very complete, and a good time-saver." Los Angeles, Cal.

". . . the fact that your organization is publishing a Mid-Year Supplement of Manufacturers who are not mentioned in the original Catalog will certainly maintain or add to the value of your publication." Jersey City, N. J.

Abingdon Sanitary Mfg. Co.
Ackerman-Johnson Co.
Acme Asbestos Covering & Flooring Co.
Acme Frost Proof Closet Mfg. Co.
Acme Metal Products Corp.
Acme Shower Curtain Co.
Adams Engineering Co., Inc.
Adjustable Bearing Plate Co.
Afco Mfg. & Sales Co.
Ajax Radiator Enclosure Co., Inc.
Alberene Stone Corp. of Virginia
All Metal Mfg. Co.
Allen Co., L. B.
American Blower Corp.
American Brass Co.
American Die & Tool Co.
American Gas Products Corp.
Ames Mfg. Co., Frank
Anderson Products, Inc.
Armstrong Bros. Tool Co.
Armstrong Mfg. Co.
Atchison Specialty Mfg. Co.
Autovent Fan & Blower Co.
Ayling & Reichert Co.

Badger & Sons Co., E. B.
Barber Gas Burner Co.
Bead Chain Mfg. Co.
Beaton & Cadwell Mfg. Co.
Beaton & Corbin Mfg. Co.
Beaver Pipe Tools, Inc.
Bell & Gossett Co.
Benson Co., Inc., Alexander R.
Bernz Co., Inc., Otto
Biggs Boiler Works Co.
Black & Decker Mfg. Co.
Blake Specialty Co.
Blue Seal Chemical Co.
Boosey Mfg. Co., Norman
Bradley Washfountain Co.
Breckwoldt & Son, Inc., Julius
Bridgeport Brass Co.
Brunswick-Balke-Collender Co.
Buffalo Meter Co.
Bullard Specialty Co.
Burnham Boiler Corp.

Camden Pottery Co.
Capitol Mfg. & Supply Co.
Carey Co., Philip
Carty & Moore Engineering Co.
Cascade Foundry Co.
Case and Son Mfg. Co., W. A.
Cash Valve Mfg. Corp., A. W.
Celina Mfg. Co.
Chase Brass & Copper Co.
Chelsea Metal Stamping Co.
Cheney Co.
Chicago Granitine Mfg. Co.
Chicago-Wilcox Mfg. Co.
Citrushine Mfg. Co.
Cleveland Brass Mfg. Co.
Cleveland Heater Co.
Coleman, Allan J.
Coleman Equipment Co.
Columbia Radiator Co.
Commonwealth Brass Corp.
Compound Injector & Spec. Co.
Concrete Fixtures Co.
Consolidated Brass Co.
Coyne & Delany Co.
Curtin Valve Co., A. F.

Dart Mfg. Co., E. M.
Davis Engineering Corp.
Decatur Pump Co.
Deegan Mfg. Co., E. J.
Delaware Sucker Rod Co.
Deming Co.
Denier & Co., James C.
Detroit Lubricator Co.
DeWitt Products Corp.
Dole Valve Co.
Dresser Mfg. Co., S. R.
Duriron Co., Inc.

Eagle-Picher Lead Co.
Eastern Foundry Co.
Economy Pumpng Machinery Co.
Elkay Mfg. Co.
Elkhart Foundry & Machine Co.
Elkhart Iron Works
Enbee Mfg. Co.
Erie Tool Works
Eustis Mfg. Co., J. P.
Evry-Use Products, Inc.
Excelsior Leather Washer Mfg. Co., Inc.
Excelsior Tool and Machine Co.
Excelso Products Corp.

Fedders Mfg. Co.
Fiat Metal Mfg. Co.
Fitzgibbons Boiler Co., Inc.
Flannery Co., P. J.
Florence Stove Co.
Franklin Rubber Corp.
Fritz Mfg. Co.

Gardiner Metal Co.
General Blower Co.
General Ceramics Co.
General Wire Spring Co.
Gerity-Adrian Mfg. Co.
Gerstein & Cooper Co.
Globe Machine & Stamping Co.
Goetze Gasket & Packing Co.
Grabler Mfg. Co.
Grinnell Co., Inc.

Haas Co., Philip.
Harris & Co., Arthur
Healey Brass Foundry Co., Peter
Healy-Ruff Co.
Hedges-Walsh-Weidner Co.
Hempstead Mfg. Co.
Hercules Chemical Co., Inc.
Hindley Mfg. Co.
Hoffman Specialty Co., Inc.
Hollands Mfg. Co.
Holmberg Steam Trap Co.
Holsclaw Bros., Inc.
Hotstream Heater Co.

Imperial Brass Mfg. Co.
Insto-Gas Corp.
Isert Co., Inc., John H.

Jenkins Bros.
Jenkins Mfg. Co., Inc.
Jennison Co.
Jewel Mfg. Co.
Johns-Manville

Kainer & Co.
Kam Water Heater Mfg. Co.
Kaustine Co., Inc.
Kennedy Valve Mfg. Co.
Ketcham Mfg. Corp., G. M.
Kewanee Boiler Corp.
Key Co.
Kitson Co.
KleenSan Corp.
Knott Mfg. Co.
Kokomo Sanitary Pottery Corp.
Koven & Brother, Inc., L. O.
Kuhn & Jacob Mould. & Tool Co.
Kuhns Bros. Co.

Lattner Mfg. Co., P. M.
Lavelle Rubber Co.
Lawson Co., F. H.
Leavitt Machine Co.
Lee Brothers Foundry Co.
Lehman Sprayshield Co.
Leonard-Rooke Co.
Levow, David
Lockport Fittings Co., Inc.
Lonergan Mfg. Co.
Lookout Boiler & Mfg. Co.

Malleable Iron Fittings Co.
Martin & Sons, H. P.
Marvel Machine & Brass Works
McCord Radiator & Mfg. Co.
McDonnell & Miller
Meer Made Products
Meneley-Diederich Co., Inc.
Miami Cabinet Division of Philip Carey Co.
Michigan Pipe Co.
Midland Metal Mfg. Co.
Midwest Piping & Supply Co.
Milwaukee Brush Mfg. Co.
Milwaukee Stamping Co.
Modern Shower Door Co.
Mouat Vapor Heating Co.
Mueller Brass Co.
Mueller Steam Specialty Co., Inc.

Nash Engineering Co.
National Boiler Improvement Co.
National Metal Products Corp.
National Pipe Bending Co.
National Regulator Co.
National Steel Construction Co.
National Water Lift Co.
Naugatuck Mfg. Co.
Never Split Seat Co.
New York Air Valve Corp.
Norristown Magnesia & Asbestos Co.
Nustone Products Corp. of New Jersey
Nye Tool & Machine Works

Oatey Co., L. R.
Ohio Brass Co.
Oster Mfg. Co.

Paine Co.
Patrol Valve Co.
Patterson-Kelley Co.
Peerless Heater Co., See Eastern Foundry Co.
Penberthy Injector Co.
Pennsylvania Range Boiler Co.
Peters Pump Co.
Petroleum Engineering Corp.
Philadelphia Stove Co.
Pittsburg Water Heater Corp.
Powers Regulator Co.
Production Plating Works, Inc.

Radiator Specialty Co.
Redlon, O. M.
Reichert Float & Mfg. Co.
Rhode Island Fittings Co.
Richmond Foundry & Mfg. Co.
Ridge Tool Co.
Rife Ram & Pump Works
Rival Strap Corp.
Riverside Boiler Works, Inc.
Riverside Foundry and Galv. Co.
Robertshaw Thermostat Co.
Rockford Brass Works
Ruberoid Co.
Russell & Co., W. A.

Sall Mountain Co.
Sands Mfg. Co.
San-Equip, Inc.
Sanitary Company of America
Sarco Co., Inc.
Scaife & Sons Co., Wm. B.
Scott Valve Mfg. Co.
Self-Cleaning Strainer Co.
Selfridge-Norton Mfg. Co.
Sherwood Brass Works
Simplex Mfg. Co.
Skinner Co., Herbert G.
Skuttle Co., J. L.
Slater Mfg. Co.
Smooth-On Mfg. Co.
Spang, Chalfant & Co., Inc.
Spencer Thermostat Co.
Stahot Heater Corp.
Standard Asbestos Mfg. Co.
Standard Brass Mfg. Co.
Star Mfg. Co., Inc.
Steel Kitchens Corp.
Sterling Engineering Co.
Streamline Pipe & Fittings Co.
Stuart Oil Co., D. A.
Sturtevant Co., Inc., B. F.
Super Solder Co.
Superior Flake Graphite Co.

Taco Heaters, Inc.
Taylor Co., Halsey W.
Teck Mfg. Co.
Thompson & Son Co., Henry G.
Thrush & Co., H. A.
Titan Valve & Mfg. Co.
Titusville Iron Works Co.
Toledo Pipe Threading Mach. Co.
Trimont Mfg. Co., Inc.
Trupar, Inc.
Tryco Products, Inc.
Turk Mfg. Co., Joseph

United States Gauge Co.
United States Rubber Products
U. S. Stoneware Co.
Universal Sanitary Mfg. Co.

Van Arnam Mfg. Co.
Vinco Co., Inc.
Vogel Co., Joseph A.

Wade Iron Sanitary Mfg. Co.
Wade Mfg. Co.
Warnock Mfg. Co.
Waterfilm Boilers, Inc.
Watts Regulator Co.
Webster & Co., Warren
Weis Mfg. Co., Inc., Henry
Wessels & Sons Co., D. D.
Western Metal Specialty Co.
Western Wire Products Co.
Wheeling Machine Products Co.
Whitlam Mfg. Co., J. C.
Whitlock Coil Pipe Co.
Will & Baumer Candle Co., Inc.
Williams-Bowman Rubber Co.
Williams & Co., J. H.
Wood Mfg. Co., Inc., John
Worcester Brush & Scraper Co.
Wusco Mfg. Co.
Wyckoff & Son Co., A.

Yeomans Brothers Co.

Zero Water Softener Mfg. Co.

The above Manufacturers have placed their Catalog Material in Domestic Engineering Catalog-Directory and Mid-Year

Supplement in order to save time for the Buyer of Plumbing and Heating items by making their products Easy to Buy.

15 years serving the Manufacturers, Wholesalers and Contractor-Dealers.

"We enjoy reading DOMESTIC ENGINEERING, which statement will be verified by the fact that we have been subscribers for about ten years."
G. E. D.,
Belleville, Ont.

Between Ourselves

Ideas and Ideals . . . which make up . . . this Issue . .

Radio Is Another Business Phase

Radio broadcasts have been used increasingly by our industry. Programs sponsored by associations in planned publicity efforts have been and still are being used to make the buying public conscious of the benefits our industry has to offer through new and modern products and services. This industry-building job deserves every support. Paralleling this are the efforts of individual contractor-dealers in promoting their own businesses through modern, effective and highly creditable radio advertising. An industry is judged by the character of the individuals composing it. The radio advertising of one contractor-dealer raises the respect of the public for all of the contractor-dealers coming within the sphere of its influence. The extent to which this new sales tool is being used by our industry warrants its classification as one phase of the modern contractor-dealer's many sided business activity. This is typified by the front cover of this issue which shows W. H. Picard of Oakland, California, during an actual broadcast. Elsewhere in this issue is a complete story telling how he literally has picked out of the air during the summer slump three dollars for every dollar he has invested.

Thus, the front cover of this issue carries on the series which shows our industry in its different phases. Contractor-dealers are meeting the challenge of modern times which demands a well balanced and many-sided business activity.

Air Conditioning, Of Course

Model homes sometimes are considered good indexes of the trends of public demand. Where this applies, it is significant that no longer is air conditioning in model homes considered a novelty. Instead, air conditioning is taken as a matter of course and new and untried gadgets are the novelty features. Air conditioning has been impressed upon the public consciousness by its application to large buildings. It is being demanded where services to the public are offered as in restaurants, theatres, stores and shops. This is significant because it shows first, that there has been developed a public acceptance of air conditioning, next a public demand for it and finally but most important, that we are on the threshold of a practically untouched market in the form of residential and apartment applications.

With the public taking air conditioning as a matter of course, increased responsibility is imposed upon our industry. It means that the public looks upon air conditioning in all of its phases as an accomplished fact now perfected and will accept nothing less.

The Shoemaker's Children

The old story of the shoemaker's children not having any shoes does not apply here. In this issue is an article which tells how a showroom for air conditioning equipment actually is air conditioned. The article was written with the idea of giving readers practical information which they can use in their own air conditioning sales and installation work.

The Reason for Relief Valves

If there is any question as to the necessity for the installation of relief valves, all of this should be dispelled by the article in this issue which completely and clearly delves into the fundamentals of the subject. For complete protection it is emphasized that pressure, temperature and vacuum, all three must be taken into consideration. Without any attempt to alarm, the disastrous results which can come from overheated tanks of water are shown simply and undeniably. A tank of water under pressure and heated to a temperature high above the normal boiling point of water can be compared to a combination of a skyrocket, a Fourth of July pinwheel and a bomb. In any event, under these conditions with a rupture in the tank, the equipment unintentionally becomes an engine of destruction.

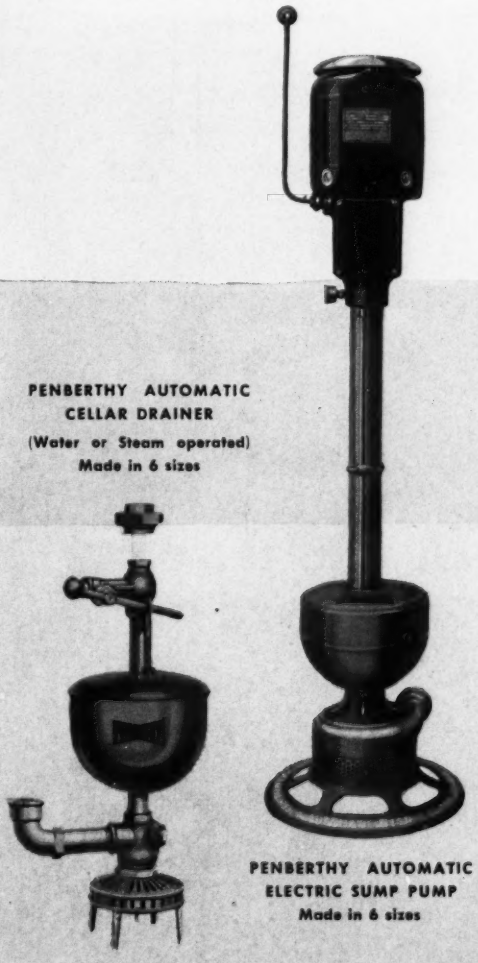
Your Editor

OUTSTANDING PERFORMANCE

for removing seepage water

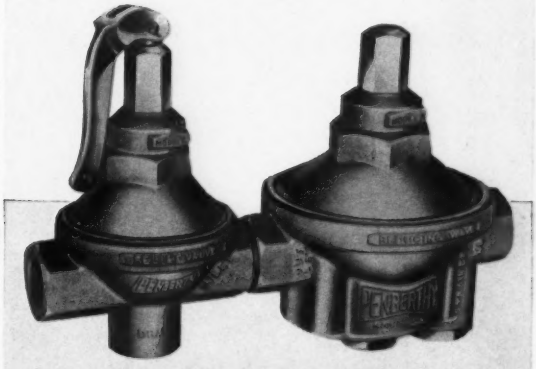
for modernizing hot water heating systems

PENBERTHY PRODUCTS

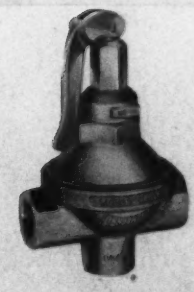


PENBERTHY AUTOMATIC CELLAR DRAINER
(Water or Steam operated)
Made in 6 sizes

PENBERTHY AUTOMATIC ELECTRIC SUMP PUMP
Made in 6 sizes



PENBERTHY PRESSURE AND RELIEF CONTROL
Made in 3 Models



PENBERTHY RELIEF VALVE
Made in 14 Models
including Dead End Type

PENBERTHY REDUCING VALVE
Made in 9 Models

Advanced and rugged design, copper and bronze construction throughout, and careful workmanship are responsible for the demonstrated superiority of these Penberthy pumps wherever seepage water accumulates. Leading jobbers stock Penberthy products.

Penberthy Hot Water Heating Specialties are constructed of high grade steam bronze. Their design and workmanship are also of exceptional quality throughout. Your jobber will gladly give you complete information and supply your needs.

PENBERTHY PRODUCTS

PENBERTHY INJECTOR COMPANY *Manufacturers of* QUALITY PRODUCTS *Since 1886*
DETROIT, MICHIGAN • *Canadian Plant, Windsor, Ont.*

OVERHEAD OR IN A TRENCH

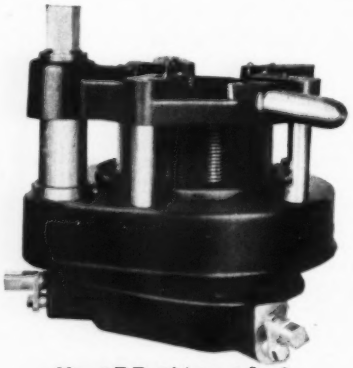
—a "TOLEDO" No. 2 or No. 2BR 2½" to 4" Geared Ratchet Adjustable Threading Device will do the work with ease.

No. 2 uses a separate set of dies and a separate bushing for each size pipe.

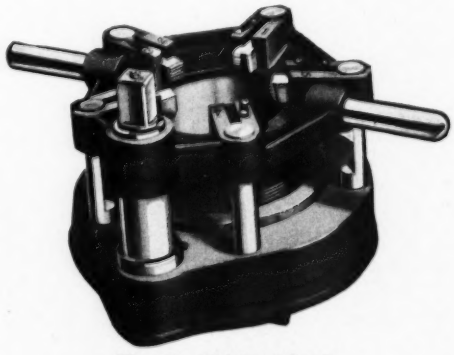
No. 2BR like No. 2 except does not use bushings.

Long life pipe holder. Three broad-faced chuck jaws operated by heavy set screws and size-marked guide bars make for easy, accurate centering.

Sold by leading dealers. Specify "TOLEDOS" and know the difference.



No. 2BR 2½ to 4 Inch
No Bushings Required



No. 2 2½ to 4 Inch
Uses Bushings

THE TOLEDO PIPE THREADING MACHINE CO.
TOLEDO, OHIO

NEW YORK OFFICE: 72 LAFAYETTE STREET

"TOLEDO"
TRADE-MARK REGISTERED U.S. PAT. OFFICE

OUR INDUSTRY

August, 1937

Proof of Innocence Cost $100,000

THE first decisions of the Federal Trade Commission, under the Robinson-Patman Act, have just been handed down. Those who favor interpretations in support of the drastic enforcement of the Law see in these decisions one conclusion. Others hail the FTC orders as a confirmation of their opposing viewpoints. No doubt there is some wishful thinking on both sides of the question. In any event, with the wearing off of the excitement and speculation which always accompany important news, there are several facts which remain and which cannot be overlooked. However, before considering them, it might be well to review the final orders.

One FTC ruling dismissed its case against a cheese corporation which was alleged to have violated the Robinson-Patman Act by granting extra discounts on large purchases.

A second complaint which was dismissed involved the sale of floor covering by a manufacturer to a mail order house. This complaint charged that the manufacturer sold floor covering at prices favoring the mail order house, in violation of section 2a of the Robinson-Patman Act.

A third decision resulted from a complaint against a purchasing agent which was found to have received brokerage fees from selling corporations. It was found further that these fees were passed on to the purchasers, which action, in effect, constituted an extra price concession for those buyers who subscribed for this purchasing service. In this case, a cease and desist order was issued by the FTC.

The fourth decision also resulted in a cease and desist order being issued against a hat manufacturing company which was alleged to be discriminating in prices among its chain and syndicate customers.

It should be remembered that the Robinson-Patman Law requires the one who is accused to prove himself innocent. In other words, if charges of violation of this Law are issued against an individual or a company, the burden of proof lies with the one complained against. It cost $100,000 for the cheese corporation mentioned in the foregoing to defend itself against charges of price discrimination under the Robinson-Patman Act, according to a reported statement of the corporation's president.

The chairman and president of the mail order house mentioned in the floor covering case stated that "the litigation was costly". The chairman of the floor covering company is reported to have said, "The law is likely to bankrupt any honest but financially weak business which is put on the defensive by an unfounded complaint". He referred to the "ignominy and expense of a formal complaint" to the manufacturer.

Regardless of the decisions which have been handed down, the facts that the law is still on the statute books and that litigation is costly stand as extremely sobering influences.

Another measured conclusion which can be drawn is that the FTC is applying the so-called "rule of reason". This is strongly apparent in the dismissal of the case against the cheese corporation and the issuance of the cease and desist order against the hat company. In the former, quantity discounts were allowed, apparently on the score that tests showed no damage was done either to competing manufacturers or to competing retailers by the discount on cheese. In the latter case the evidence revealed that the discount which was extended to a single large purchaser did tend to destroy competition.

The rule of reason in this instance has been well summarized in the explanation that if a discount on a product in a grocery store is legal, the same may not be true of one sold in a millinery establishment on the basis that if a grocer's price on cheese seems high, the customer might be mollified by a correspondingly low price on coffee or sugar, while the milliner, selling nothing but hats, has less opportunity to convince his prospects that his prices are not out of line. The Commission's lengthy discussion of trade diversion appears to indicate it took into consideration the fact that a grocer carries a host of different items while the entire stock of the millinery store consists of hats.

From all of this, it is apparent that while the administration of the law may be disappointing to those who have looked upon it as a cure-all for the problems of the independent businessman, by no means have these interpretations emasculated its effectiveness as a control measure. Our position continues to remain as in the past, namely, that of urging an understanding of this legislation, its interpretations and its potentialities if full protection is to be obtained under its benefits and against its possible abuses.

J. C. Spence and Henry L. McIntyre have prepared the information on these pages, in collaboration with our Washington correspondent*

HIGHLIGHTS of the Latest News from WASHINGTON

First FTC Decisions

- *Dismissal for Kraft-Phoenix Cheese Corporation and Bird and Son, Inc.—Cease and desist orders issued against Biddle Purchasing Company and Hollywood Hat Company, Inc. Conclusions of Commission are presented*

July 17, 1937 saw final orders entered in four of the cases pending before the Federal Trade Commission under the Robinson-Patman Anti-Price Discrimination Law. In two of these cases cease and desist orders were issued, and in the other two the complaints were dismissed. This brings to five the total number of complaints which have been finally disposed of by the Commission under this law. As will be remembered, the fifth complaint involved the Procon Grocery Company and others and was dismissed when that concern was dissolved, so the four cases decided on July 17 are the first ones to be passed upon by the Commission on the merits.

One of the cease and desist orders was entered in the Biddle Purchasing Company case.

The Government's brief in this one case was summarized in these columns recently so that our readers are familiar with the facts in the case. The Commission found as facts that the selling corporations involved paid brokerage fees to the Biddle Purchasing Company which fees were paid by Biddle to the purchasers and that thereby the "Biddle buyers" got a lower price on commodities purchased through Biddle from the sellers than other buyers who do not buy through Biddle. The Commission also found that the Biddle Purchasing Company is neither the agent nor the representative of the seller and that if any services are rendered to the seller they are donated by the Biddle Company to the seller. It was also found that the respondent buyers render no service to the sellers.

The conclusion of the Commission was that the sellers had violated Sub-Section C of Section 2 (known as the Robinson-Patman Act) by paying fees as brokerage to the Biddle Company with knowledge that such fees were intended to be and were being paid over by Biddle to the buyers. It was found that the buyers were violating the same sub-section by receiving and accepting fees paid in connection with the purchase of commodities by them through Biddle Company. And it was also found that Biddle Purchasing Company violated Sub-section C by receiving such fees and transmitting and paying over the same to the buyers.

Cease and Desist Orders

"That said respondent Biddle Purchasing Company is the instrumentality and means by which respondent sellers unlawfully were enabled to make payment of such fees and commissions as brokerage to respondent buyers, and by which the respondent buyers are enabled to receive and accept the same."

The order of the Commission was that the sellers forthwith cease and desist, in connection with the offering for sale, sale and distribution of commodities in interstate commerce, from paying to Biddle any fee or commission which is intended to be paid over or which is in fact subsequently to be paid over in whole or in part to any purchaser of such commodities. It was likewise ordered that the purchasers cease and desist from accepting from Biddle any fee which had been paid to Biddle as brokerage by the seller of commodities from sales made by the seller to said buyer. And Biddle Purchasing Company was ordered to cease and desist from receiving any fee as brokerage which is intended to be paid over to the purchaser and to cease and desist from paying to any purchaser any fee received as brokerage from the seller of such commodities.

The only other cease and desist order so far entered under the Robinson-Patman Act was entered in the case of the Hollywood Hat Company. As pointed out in former issues of DOMESTIC

FLASH! ! !

Biddle Purchasing Company, against whom one of the two cease and desist orders thus far entered under the Robinson-Patman Law was issued, have indicated their intention of appealing to the United States Circuit Court of Appeals for the Second Circuit from the cease and desist order of the Federal Trade Commission. It will of course be some time before the case will come to be heard before the court, but it now appears that this will be the first test of the new Law before a court.

Resale Price Maintenance

The most interesting development in the field of new legislation was the passing on July 23 of the so-called Re-Sale Price Maintenance Measure by the United States Senate. It will be remembered that the House has passed a similar bill and both bills have been sent to a conference committee for the purpose of reconciling the two measures.

Lea Bill

The Lea Bill has been reported out by the House Committee and may be considered by the House of Representatives before adjournment but there is no definite assurance that it will be enacted at this session.

*Connected with the Chicago law firm of Robertson, Crowe & Spence.

ENGINEERING, this case involved violation of both Section 2 and Section 5 of the Clayton Act. As to the alleged violation of Section 2 of the Robinson-Patman Act, the Commission found that Hollywood Hat Company, Inc., sold suede hats to its largest customer at $21.00 a dozen and assorted velours at $36.00 a dozen while competitors of its largest customer who bought in much smaller volume were sold suede and assorted velour hats of the same style, grade and quality at the same time at prices of $24.00 or $27.00 per dozen for suede and $39.00 or $42.00 per dozen for velour hats. The Commission concluded that this price discrimination was not justified by reason of difference in the cost of manufacture, sale or delivery resulting from the different methods of quantities in which the quantity was sold or delivered and it was not justified by any other exception or proviso in the Robinson-Patman Act. The Commission also concluded that the effect of such discrimination may be to injure, destroy or prevent competition with such customers who receive the benefit of the said discrimination. Therefore, the Commission found that the discrimination violated Section 2. It was ordered that the respondent company cease and desist from the unlawful discrimination in price and from engaging in any similar discrimination in price, in sales in interstate commerce under substantially like circumstances and conditions between persons competitively engaged with one another.

Of the two complaints dismissed one involved the Kraft-Phenix Cheese Corporation, hearings in which were held in Chicago and reported in some detail in the winter issues of DOMESTIC ENGINEERING. As the complaint was dismissed the Commission made no findings of facts, but it did issue a "memorandum statement of pertinent facts deduced from the record and the conclusion which it has drawn therefrom." As our readers may remember the sales and distribution methods of the Kraft-Phenix Cheese Corporation were gone into in great detail in the hearings and the following excerpt from the memorandum statement of the Commission is therefore interesting.

Interstate Commerce

"Respondent Kraft-Phenix Cheese Corporation, individually and through subsidiaries, manufactures and distributes on a nationwide scale a line of processed cheese, package cheese and salad dressing. Respondent itself ships these products across state lines from factories to warehouses and the products are usually distributed from warehouses to retailers by truck by sales subsidiaries of respondent or independently owned jobbers and wholesalers. The distribution from the warehouses to retailers is usually within the confines of a single state, although in some cases this distribution crosses state lines. Respondent advertises its products extensively to the purchasing public and maintains a force of salesmen who contact retailers, most of whom buy Kraft products from independent jobbers. There is a continuous, uninterrupted flow and current of commerce in respondent's products from the factories to warehouses and from the warehouses over regularly established routes to retailers, whose identity is known in advance. The course of such commerce runs between, among, across, and within all the states of the United States and the District of Columbia.

"Considered in their character as interstate commerce, respondent's products, upon reaching the warehouse, do not become mixed with or a part of the general mass of property within the state in which such warehouse is located. On the contrary, such warehouses are clearing houses or distributing points, serving one function in respondent's system of making its perishable products available for sale by retailers to the ultimate consumer, the purchasing public. Respondent's advertising, its solicitation of retailers, and the facilities which it provides for the sale and distribution of its products to the retailer, are all vital and essential elements in the process of marketing these commodities.

Purpose and Intent

"The purpose and intent of respondent in manufacturing and processing its products, in transporting them to warehouses, and in selling them directly and indirectly to retailers, is from beginning to end to reach through the channels of interstate commerce retailers who sell to consumers. Respondent's plan of doing business is an integrated whole and, insofar as its character as interstate commerce is concerned, cannot be separated into parts. The various steps by which this plan and policy as a whole are made workable and successful are inextricably commingled and intertwined. Re-

(Continued on Page 157)

New Complaint Filed

● *Cement Institute and 75 cement manufacturers accused of combining to eliminate price competition—The use of the multiple base point system of quoting prices is alleged.*

The only new complaint filed recently under the Robinson-Patman Law involves the Cement Institute. This complaint charges that the Cement Institute, an unincorporated association, and 75 cement manufacturers (members of the Institute) producing 95 per cent of all the cement made in the United States have combined to eliminate price competition, resulting in increased prices for cement. The use of the multiple base point system of quoting prices is alleged to be the means used for carrying these combinations into effect. It is said that identical delivered prices were made by every producer entering into the combination to any given destination in the United States. The complaint says that each producer knows that when it refrains from offering competitive prices in the consuming areas where it has a natural advantage, that it will receive the same freedom from price competition when the situation is reversed. It was also alleged that the producers had refused to sell F. O. B. mill, using the Institute's rate books to compute identical delivered prices.

This system is alleged to be one of price discrimination since the net prices received by each producer are different for each customer. The customers nearest the mills were obliged to pay higher net prices than are made by a local mill to distant customers.

The effect of this combination is alleged to preserve the more poorly located producers at the expense of the buying public and to lessen the demand for cement and the volume of public and private construction in which cement is used, and therefore lessen opportunities for employment in that industry.

Revision of Arden Complaint

The complaint against Elizabeth Arden, Inc., and Elizabeth Arden Sales Corporation has been amended to revise statements as to corporate control and to include allegations that the respondent furnished paid demonstrators to some of its customers while not furnishing this same service to others, in violation of the Federal Trade Commission Act.

Forgotten

The Picard program made its debut April 1, going on the air three times weekly from station KRE, from Berkeley which adjoins Oakland, California, where he does business

WITH dexterous fingers and magic passes, the sleight-of-hand artist seemingly produces a five-spot from thin air. It's a good trick if you can do it, but a better one if you're actually dollars ahead.

The nearest literal approach to such an end—that is, as far as ether waves are concerned—is the merchandising-by-air program of W. H. Picard, Inc., of Oakland, Calif., now in its fourth month. But the Oakland master goes the magician one better. He actually *is* dollars ahead. The fact is that right now, even though the summer is considered a dull season, he is producing "from thin air" three dollars for every one expended on broadcasting his unique message over the radio.

The Picard program made its debut April 1, going on the air three times weekly, from Station KRE in Berkeley, which adjoins Oakland. Commencing July 15, Mr. Picard spread his programs to include fifteen-minute, nightly programs, from Monday through Friday. Featuring the new set-up is the Wednesday evening program, timed for a half-hour period, when Mr. Picard goes on the air in person.

W. H. Picard photographed during one of his own radio broadcasts

Like other forms of publicity, a definite following has to be built up; listeners must be attracted, their interest must be drawn by an unvarying theme melody. The program being aimed at the more mature, more substantial range of auditors, they are being attracted and held by an extremely well rendered selection of popular light operas, the whole grouped and listed as "Portraits in Music." Theme melody is "Yesterthoughts."

Now let's tune in on a typical program:

Announcer: "W. H. Picard, Incorporated, presents 'Portraits in Music.'"

Theme: "Yesterthoughts." (Up 20 sec., fade to background.)

Announcer: "Here are portraits in music portrayed this evening by the full-voiced male chorus, The Spanish Strings, and the contralto voice of Alice Prindle—all transcribed for your enjoyment, that you may picture in memory beautiful scenes and meaningful events. W. H. Picard, Incorporated, The Home of Modern, Sanitary and Healthful Plumbing Fixtures, at 4166 Broadway in Oakland, is ready to give you happiness and good health—through modernization."

Theme: (Up 10 sec. and out.)

Announcer: "'Spanish Village,' Massenet's composition from the 'Don Quixote Suite' is full of interesting pictures for those who will look and listen. Don Quixote and his lackey, Sancho, galloping madly over the landscape, tilting here at windmills, battling there over some

Room—*Radio Used As Reminder*

"Even though the summer is considered dull he is producing 'from thin air' three dollars for one"

fair maiden. Listen while the Spanish Strings trace the knight errant's course—a portrait in music."

Music: "Spanish Village."

Announcer: "From the sunny fields of Spain we turn for our next portrait to the equally brilliant skys of southern Italy. The Standard Male Chorus paints a portrait that needs but little interpretation: it is one of color and movement—the Italian fishermen, manning their squat, lateen-sailed craft, sing eternally to their patron saint. Her mercy and indulgence cannot be withheld, for the appeal is strong—'Santa Lucia.'"

Music: "Santa Lucia."

Announcer: "Let us call upon our featured vocalist, Alice Prindle. Here she sings a tender melody, enough to conjure up many a portrait in music. Let her rich contralto voice guide our attention to another picture—'Forgotten.'"

Music: "Forgotten."

Theme: "Yesterthoughts." (Up 10 sec., fade to background.)

Announcer: "How many of you realize the tremendous strides that have been made in modernization? Do you know how unnecessary it is to endure insanitary bathroom fixtures? How beautifully clean and healthful your bathroom can be made through the installation of modern, streamlined fixtures, under the expert guidance of W. H. Picard, Incorporated? In case you don't, then by all means visit the showrooms of this organization at 4166 Broadway, tomorrow. You will see the new automatic water heater, the most modern of ranges, kitchen cabinets, kitchen appliances, the new plumbing fixtures—all of which, plus the personal supervision of W. H. Picard who has had 25 years of experience in this important work, will bring you health and happiness in your home. . . . Now let us return to our imaginary picture gallery for another portrait transcribed for us by the Spanish Strings. It is the lilting composition from the colorful production 'La Fete de Seville,' and is known as 'Sierra Morena.'"

Music: "Sierra Morena."

And so continues the delightful program, down through the vocalization of "The Lamplit Hour," the ballet music from Franz Schubert's "Rosamond," rendition by the Standard male chorus of a Stephen Foster medley and the Spanish Strings harmonizing with "Luna de Amor."

Then, against the background of theme music, comes the voice of the announcer:

"So is concluded another program, presented for your enjoyment by W. H. Picard, Incorporated, 4166 Broadway in Oakland. The word we wish to leave with you is this: Modernization can be yours—all the beauty, utility, healthfulness, convenience, that is available through W. H. Picard, is yours, when you entrust the modernization of your home to his skilled craftsmen. To take advantage of this is to modernize your way to health and happiness. See the beautiful exhibits of modern plumbing fixtures, of instantaneous water heaters, and especially see the electric stoves. The new range for 1937 brings you a new appreciation of the wonders of electric cookery. It is fully automatic; you may set the controls and leave the kitchen while the range prepares your meals. But you must see the new range to appreciate it. Go to W. H. Picard, Incorporated, 4166 Broadway, tomorrow and be most agreeably surprised at the array of modern appliances, appliances that will

(Continued on Page 161)

Here is the first announcement of the program. Other announcements followed. One was timed to coincide with an expanded program; another with a water heater campaign and this month (August), another will be mailed to some 5,000 chosen names. This last will deal with heating

Picard's *presents* . . .

A Delightful New Radio Program

"Portraits in Music"

Distinctive arrangements of familiar melodies by

Ferdinand Strack and the Concert Orchestra

Margit Hegedus and the String Ensemble

The Uptowners Quartette

and

Guest Artists

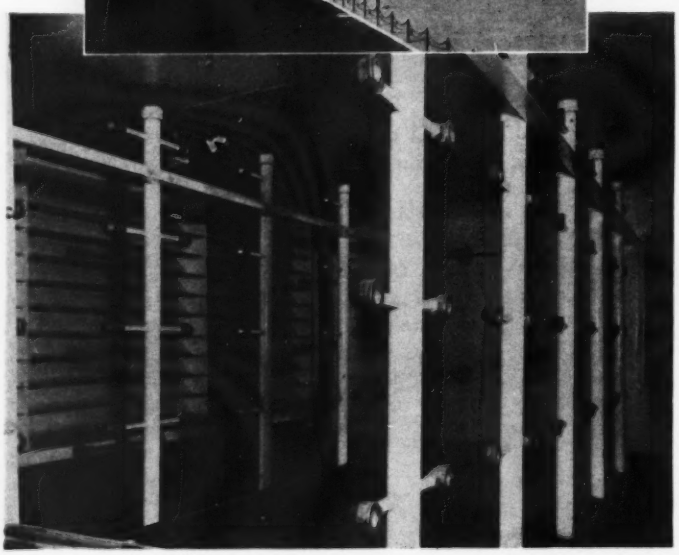
KRE Sundays at 6:00 P. M.
Thursdays at 9:15 P. M.

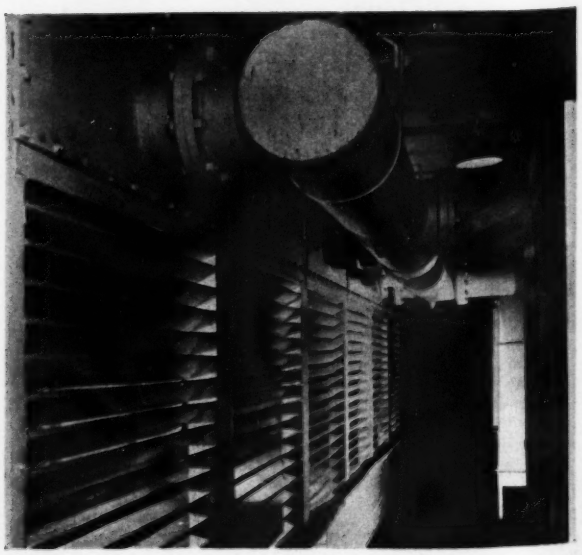
W. H. Picard, Inc. - 4166 Broadway - Oakland

World's Largest—*Showroom*

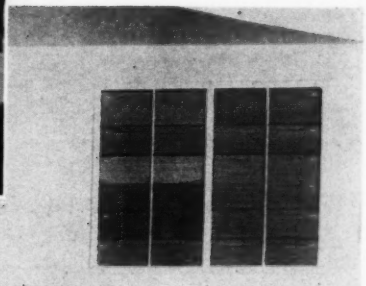
Triple cooling illustrates the various methods of operation for display and actual use

Air Washing The lower left hand view shows the spray chamber in the air washer and the lower right hand view illustrates the evaporative condenser. Upper right, is another view of the air washer and an exterior view of the building is shown in the upper left hand illustration





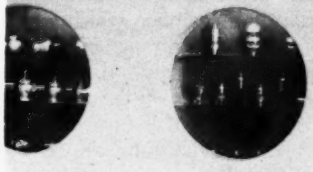
Above view shows how the duct work is fan shaped to spread cooled air. This work finished is shown below



The picture below shows the outlet in the form of a slot in the marquee. The return grilles are used for display

Above are shown baffle plates used to diffuse conditioned air from overhead outlets. Right, an outlet with adjustable vanes is shown

ESSORIES
STEM BETTER



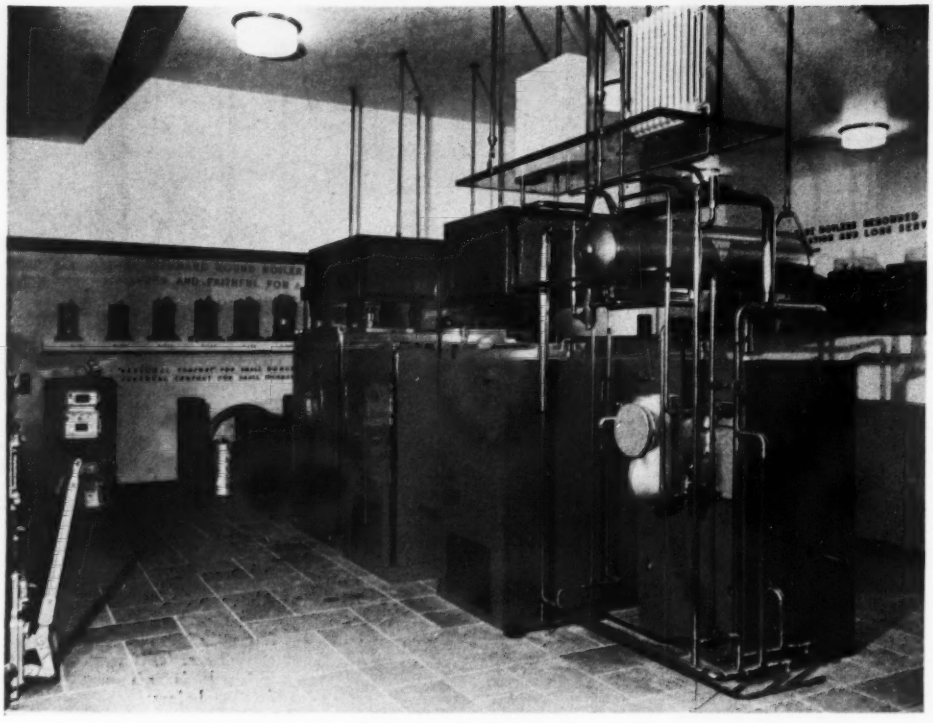
A TRIPLE cooling system, which illustrates varied operation for summer conditioning at the same time that it serves the showrooms themselves, forms a part of the new combined showrooms in New York City of fourteen companies of the American Radiator and Standard Sanitary Corporation.

For the recently constructed six story annex to the American Radiator tower at 40 West 40th Street, in which part of the showrooms are located, a decalorator, operating on the thermo-dynamic principle, is used to supply refrigeration, with the chilled water from this unit utilized in one division of the system to cool air on the air washing principle, and in the other division to provide chilled coils over which the air passes. In the main tower, itself, a CO_2 compressor is used for refrigeration, with a specially constructed air washer utilized to cool the air.

The annex equipment is located on the roof of the new six-story structure, while that for the main tower at 40 West 40th Street is located in a sub-basement.

Air delivery is accomplished through cork insulated sheet metal ducts with varied types of outlets illustrated

Outlets **The various pictures on this page show the types of outlets that were utilized in the construction of the building. It will be noted that several types are utilized to fit their special application and location in the building. One view also shows the marquee in the showroom under construction. As was noted above, the ducts terminate in a fan shape thus spreading the conditioned air about the room in a more effective way**



Here may be seen the oil burner section of the showroom. Quarter size radiators placed on a glass shelf above the boiler serve to illustrate a complete system and miniature boilers are shown in the background

throughout the different showrooms. In part of the annex, air delivery is through the ceiling, with baffle plates used to distribute the air and spread it out along the ceiling line so that it falls evenly without a draft throughout the area, while in the main building, air delivery is through the side wall above head height, with vanes or louvres, that can be used to direct the air up, down or out, provided in the registers.

For the Standard Sanitary Manufacturing Company showrooms, where there is a ceiling height of 25 ft., a specially constructed outlet system is used. Around three walls of this room runs a marquee 8 ft. 6 in. high under which are constructed a series of bathrooms and kitchens. One side of this marquee has been utilized as the basis for the outlet system, with a slot along the edge of the marquee through which the air passes into the room.

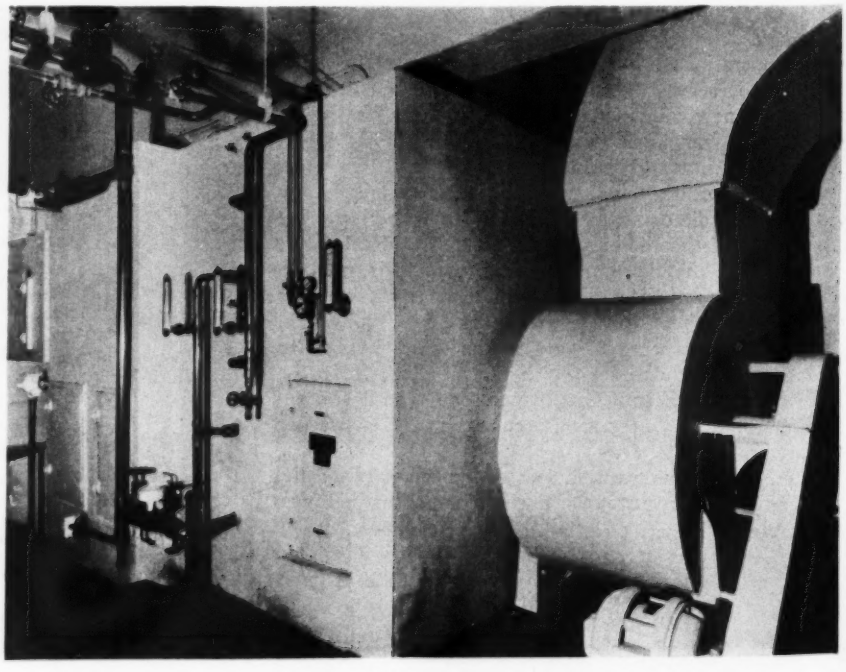
Ducts terminate in a fan shape at this slot and air passing through them spreads out and is deflected upward at an angle, so that it spreads across the room and drops evenly without a draft, returning to the cooling unit through

Display

returns placed at the floor level.

The decalorator used to cool the annex has a capacity of 66 tons of refrigeration, and is specially equipped for varied operation to conserve steam and permit careful control. On it are provided both a manual and an automatic booster. Both boosters, or guns, through which live steam is passed at approximately 100 lb. pressure, are needed to start the system but after the required vacuum has been built up, the automatic booster shuts down and operates only intermittently when the temperature of the water in the decalorator chamber rises sufficiently to require additional cooling. It is controlled by means of an aquastat located in the chilled water of the decalorator chamber which operates a pneumatic valve controlling the entrance of steam.

For normal operation, the manual booster is left open continuously, but on days when only a minimum of cooling is required, it is turned off after the system has been started, and the automatic booster, operating intermittently, maintains the necessary chilled water in the



Shown here is a surface cooling unit used to condition the air for the exhibition salon on the sixth floor. The supply fan for this unit is also shown in this illustration

decalorator chamber for the air conditioning processes.

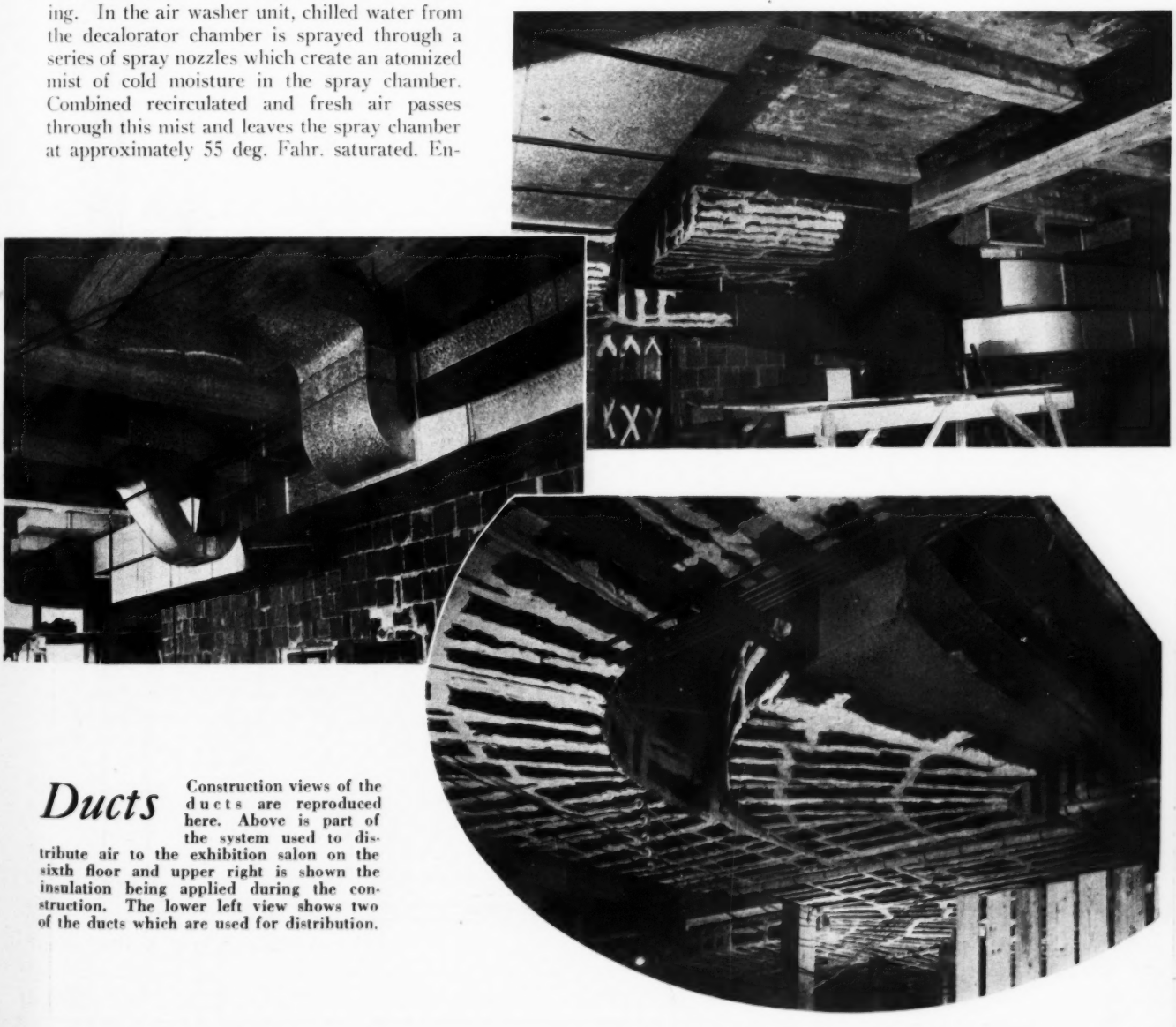
To conserve water, an evaporative condenser, that utilizes air to condense the steam after it has been used to create the necessary vacuum, is used with the decalorator. Two fans with a capacity of 30,000 c.f.m. each, draw outside air up through the condensing coils of this machine and dispel it via an outlet duct into the atmosphere. These fans are of the squirrel cage type, the inlet boxes of which are fitted with adjustable vanes to control the amount of air moved.

Water is used in the condenser only in minimum amounts, being dripped over the steam coils and evaporated to increase the capacity of the coils to conduct heat to the air and the residue is dripped into a sump to be recirculated. To compensate for water loss through evaporation, the water from the condensed steam is dripped into this sump for circulation through the condenser, while a fresh water connection controlled by a ball float assures a constant water level in the sump.

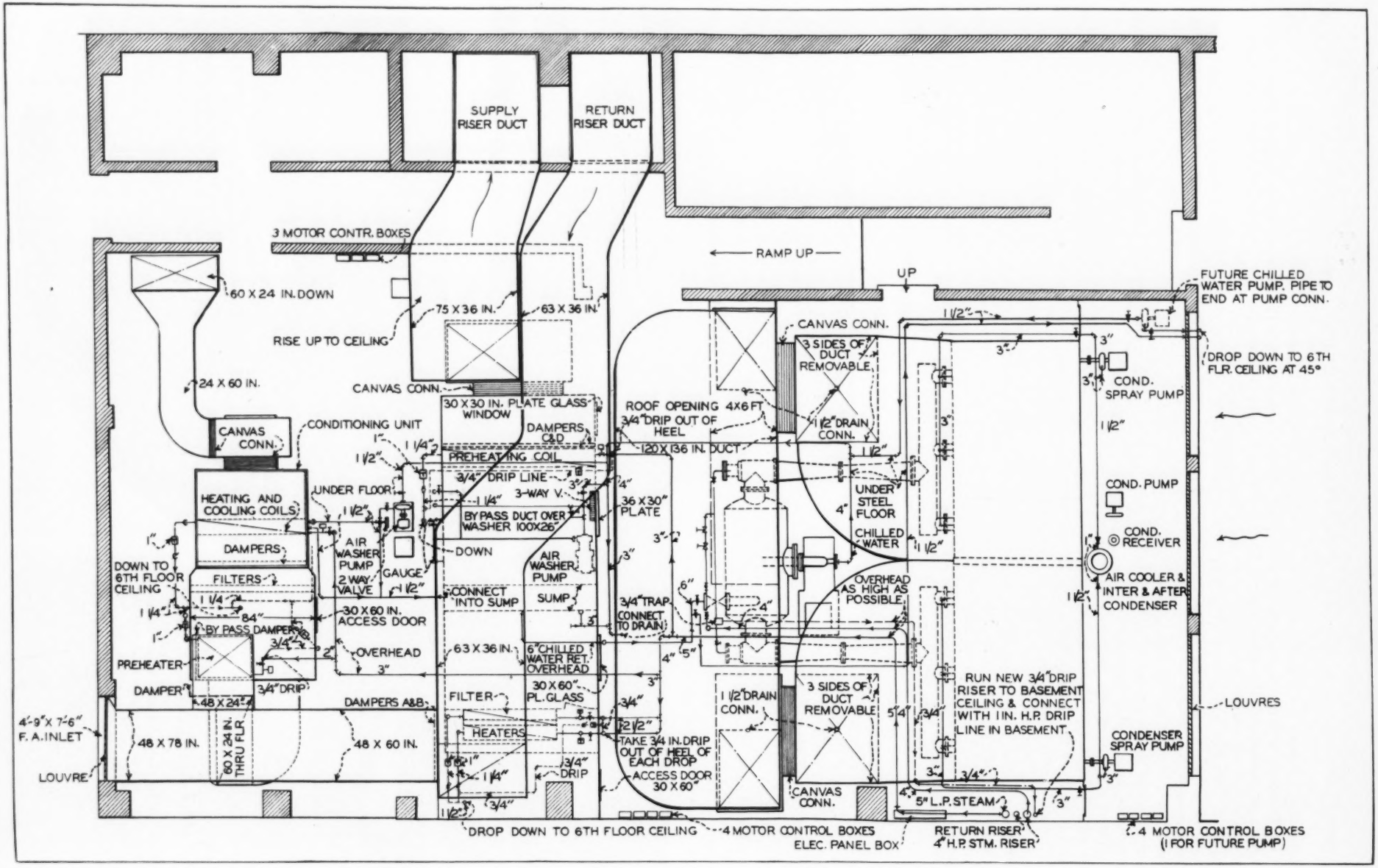
The air washer unit, operated by the decalorator, is used to cool the showrooms proper in the new building, while the chilled coil unit is used to cool the exhibition salon on the sixth floor of the building. In the air washer unit, chilled water from the decalorator chamber is sprayed through a series of spray nozzles which create an atomized mist of cold moisture in the spray chamber. Combined recirculated and fresh air passes through this mist and leaves the spray chamber at approximately 55 deg. Fahr. saturated. Entrained moisture automatically is removed by means of eliminators in the form of louvres against which it strikes and is dripped to the drain which returns the water to the decalorator.

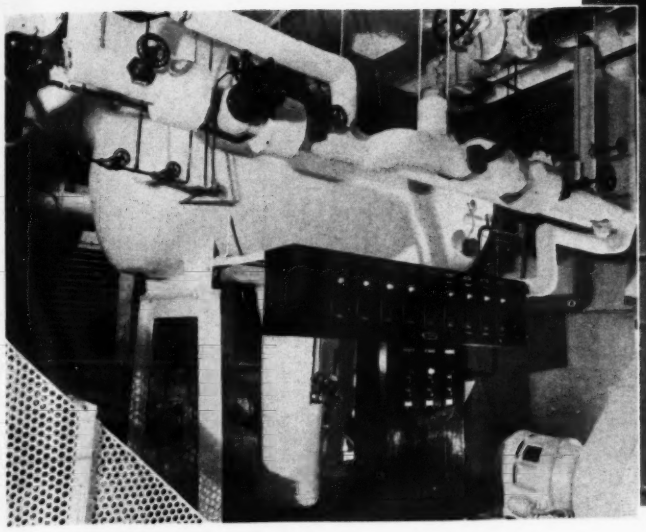
This air is then distributed through the duct system to be mixed with room air and to provide dehumidified air at a drop of 10 degrees to 13 degrees below the outside temperature.

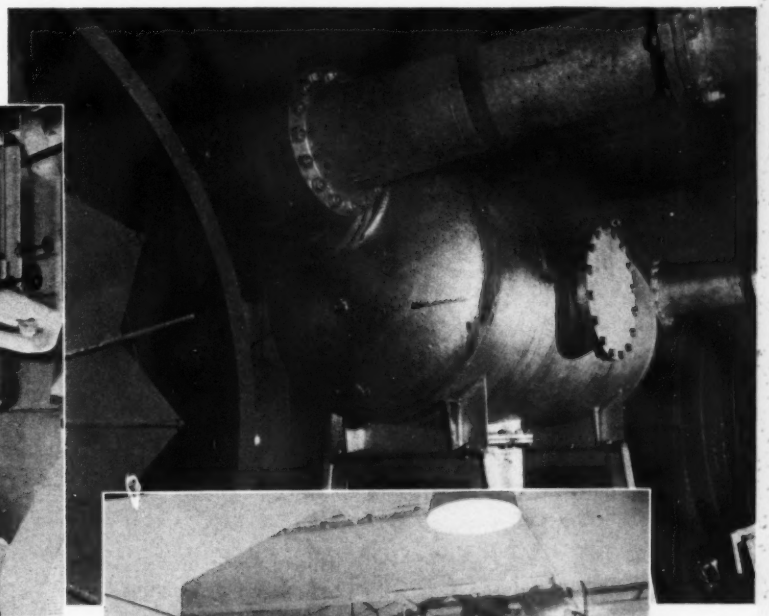
In the surface cooling unit, chilled water from the decalorator is circulated through cooling coils over which the filtered, recirculated, and fresh air is passed. Air leaves this unit at approximately 60 deg. Fahr. dry bulb temperature with a dewpoint of approximately 55 deg. Fahr. and is delivered directly to the conditioned area. Conditioned, or cooled air from both units is distributed by multi-bladed single inlet fans of the centrifugal type, one, for the air washer, having a capacity of 30,000 c.f.m., and the other, for the surface cooling unit, a capacity of 10,000 c.f.m. Approximately 40 per cent fresh air is introduced in both the surface cooling unit and the air washer with provisions made to vary this ratio in

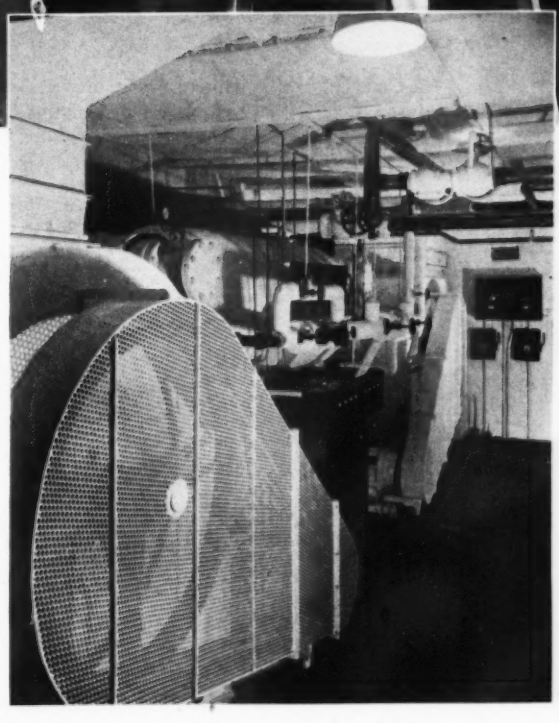


Ducts **Construction views of the ducts are reproduced here. Above is part of the system used to distribute air to the exhibition salon on the sixth floor and upper right is shown the insulation being applied during the construction. The lower left view shows two of the ducts which are used for distribution.**


SUPPLY RISER DUCT
RETURN RISER DUCT
3 MOTOR CONTR. BOXES
RAMP UP
UP
FUTURE CHILLED WATER PUMP. PIPE TO END AT PUMP CONN.
60 X 24 IN. DOWN
75 X 36 IN.
63 X 36 IN.
RISE UP TO CEILING
CANVAS CONN.
3 SIDES OF DUCT REMOVABLE
DROP DOWN TO 6TH FLR. CEILING AT 45°
24 X 60 IN.
30 X 30 IN. PLATE GLASS WINDOW
ROOF OPENING 4X6 FT
3/4" DRIP OUT OF HEEL
1 1/2" DRAIN CONN.
COND. SPRAY PUMP
CANVAS CONN.
CONDITIONING UNIT
DAMPERS C&D
120 X 136 IN. DUCT
PREHEATING COIL
3/4" DRIP LINE
3-WAY V.
UNDER STEEL FLOOR
COND. PUMP
HEATING AND COOLING COILS
UNDER FLOOR
36 X 30" PLATE
BY PASS DUCT OVER WASHER 100X26"
CHILLED WATER
COND. RECEIVER
DAMPERS
AIR WASHER PUMP
DOWN
AIR WASHER PUMP
DOWN TO 6TH FLOOR CEILING
FILTERS
GAUGE
2 WAY VALVE
CONNECT INTO SUMP
SUMP
OVERHEAD AS HIGH AS POSSIBLE
AIR COOLER & INTER & AFTER CONDENSER
30 X 60 IN. ACCESS DOOR
BY PASS DAMPER
3/4" TRAP CONNECT TO DRAIN
OVERHEAD
63 X 36 IN.
6" CHILLED WATER RET. OVERHEAD
PREHEATER
30 X 60" PL. GLASS
RUN NEW 3/4" DRIP RISER TO BASEMENT CEILING & CONNECT WITH 1 IN. H.P. DRIP LINE IN BASEMENT
DAMPER
3/4" DRIP
DAMPERS A&B
FILTER
1 1/2" DRAIN CONN.
3 SIDES OF DUCT REMOVABLE
LOUVRES
4'-9" X 7'-6" F. A. INLET
48 X 78 IN.
60 X 24 IN. THRU FLR
48 X 60 IN.
HEATERS
2 1/2"
TAKE 3/4 IN. DRIP OUT OF HEEL OF EACH DROP
CONDENSER SPRAY PUMP
LOUVRE
ACCESS DOOR 30 X 60"
CANVAS CONN.
5" L.P. STEAM
DROP DOWN TO 6TH FLOOR CEILING
4 MOTOR CONTROL BOXES
ELEC. PANEL BOX
RETURN RISER 4" H.P. STM. RISER
4 MOTOR CONTROL BOXES (1 FOR FUTURE PUMP)







Cooling **Some of the equipment which is used for cooling is shown here. Above is the decalorator, control board and pneumatic valve. At the right is the job during installation and at the lower right is the job when finished**

On the opposite page a drawing of the air conditioning equipment is reproduced. Piping and ducts are as indicated and are sized as shown. The fans, decalorator, heating and cooling provisions and all other accessory equipment are indicated herewith

accordance with the outside conditions to aid in controlling the temperature of the air delivered. In both units, combined recirculated and fresh air passes through a series of viscous type fiber board filters before it enters the cooling chamber.

Both the air washer and the surface cooling unit are equipped with an automatically operated damper controlled by a thermostat in the duct work on the discharge side of the fan which diverts a part of the air around the spray chamber, or cooling coil, in order to make up the final temperature of the conditioned air to be delivered to the room. An automatic safety check against over-cooling is provided in both units by means of pneumatic valves, operated by thermostats in the cooling chambers, which control the amount of chilled water supplied to the washer or cooling coil.

The air washer used to cool the showrooms in the main building is a specially constructed machine in which four wire cases filled with river bed pebbles, ranging in size from that of a walnut to that of an egg, are used in place of spray nozzles. Chilled water from a tank in which a direct expansion coil is located is cascaded down over these pebbles while the air is passed through the four cases. A carbon dioxide compressor supplies the refrigerant for the direct expansion coil.

In use for more than six years for part of the main tower, this unit was completely reconditioned before the new showrooms were opened.

A separate duct system is provided for distribution from each of the three units.

The installation picture at the upper right is the decalorator in the course of installation. In this picture a section of the inlet vane assembly on one of the fans may be seen. Below is the finished installation showing the control board and fan drives

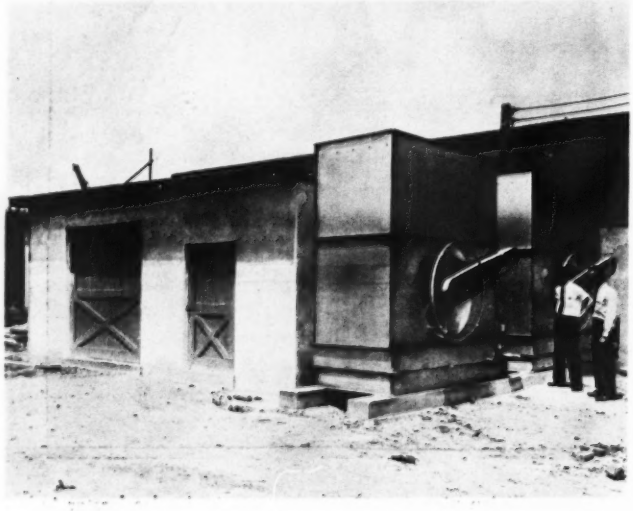
All of the apparatus used in the three cooling systems is under automatic control as to temperature of conditioning water, temperature of incoming and outgoing air at the units, and relative humidity, which are controlled by thermostats and humidistats operating pneumatic valves and dampers that maintain the conditioned air at any temperature or relative humidity which may be found desirable.

For winter operation, the air washer unit, in both the annex and the tower is used as a humidifying spray, while a special spray for humidification is used with the surface cooling unit. The same duct system used for cooling, is used to deliver conditioned air, with special provisions made in the new showrooms and exhibition salon for sources of additional heat to maintain proper temperature for each separate area or enclosure.

Mushrooms—*If Air Conditioned,*

Air conditioning installation is found to increase crops by 50 per cent and to improve product

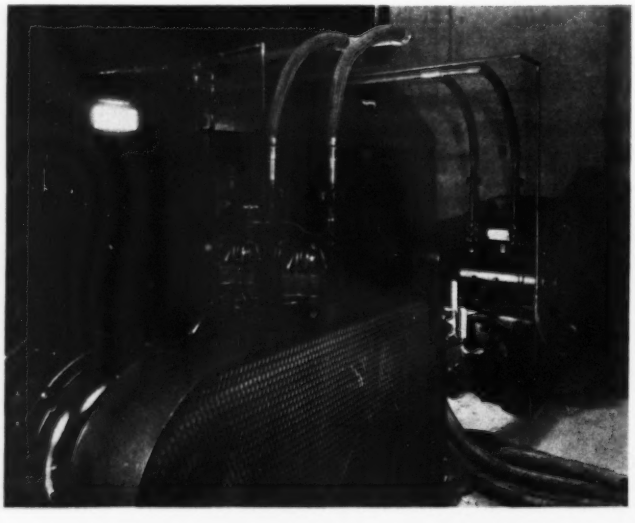
MUSHROOMS which spring up overnight may be traditional, but they are also a headache to the mushroom industry, which prefers a more gradual period of growth, less dependent on changes in the weather. Mushrooms which grow fast are generally conceded to be of inferior quality. To supply a reliable control factor and at the same time to make possible three annual crops of mushrooms instead of two, the Grocery Products Manufacturing Corporation, of West Chester, Pa., has just completed the installation of special air conditioning equipment to serve 30 additional growing houses at its Green Hill plant. The installation is the result of two years of study on the part of air conditioning engineers, who in 1935 devised a system for a trial group of four mushroom-growing houses. This system enabled the West Chester growers to produce their first satisfactory crop of mushrooms in summer weather. It also served as a source of operating and cost data so that when the new installation was planned, full advantage could be taken of the two seasons' operating experience.

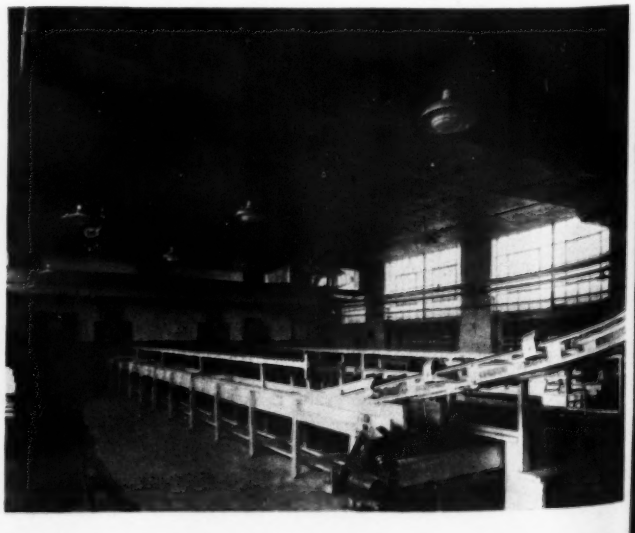


Above, exterior of an equipment room for air conditioning; below is shown part of the air conditioning compressor equipment

TWO YEARS' STUDY

The idea of air conditioning the growing houses originated with William E. Chambers, vice president of Grocery Products in charge of the mushroom division. Until this time all growing houses were shut down during the summer because of the difficulty of maintaining required atmospheric conditions. The success of the trial group of growing houses led in turn to the complete air conditioning of the entire Green Hill plant.





Grow Best . .

Mushrooms are grown in specially designed and constructed hot houses which require skillfully controlled atmospheric conditions for best crop results. It is an exceedingly exact and complex art. Even the quality of the rich earth mixture in which the mushrooms are grown can seriously affect the volume of the crop. In their production, Grocery Products make use of modern equipment and a highly trained personnel skilled in the theory of mushroom growth. Certain interesting reactions throughout the growth of the mushrooms require special controls. The use of air conditioning equipment is designed to insure proper growth.

PORTABLE EQUIPMENT

All condensing units and specially-built air conditioners used in the installation are portable and interchangeable. No water supply was available to cool the condensers, and cooling towers have been built for each compressor. These are on skids so that they can be moved. Piping between compressors and cooling towers is flexible with special couplings which can be unscrewed. The wiring is of portable rubber cable. Portability and interchangeability were though necessary to render the system flexible, since some of the houses growing mushrooms one summer might not be in the proper phase of the growing cycle to be growing mushrooms the next.

The canning plant of the mushroom company in West Chester has also been air conditioned, and commercial refrigeration equipment is employed to cool the storage room where the spawn and picked crop are kept.

These steps, air conditioning the houses where the mushrooms are grown, the storage rooms where they are kept just before the canning operations, and the canning plant itself, being air conditioned, assures the Grocery Products Manufacturing Corporation that the mushrooms are grown right, and cannot be affected by adverse atmospheric conditions before they are sealed in the market containers. The building where the original, experimental installation was made is illustrated in one of the views on this page.

At the left is shown one of the air conditioned rooms. The distribution ducts and the conditioned air outlets are suspended from the ceiling

Right, a general view of the West Chester plant where mushrooms are produced under controlled conditions

Safety—*For Water Heating . . .*

Discussed here are three conditions which can act to destroy a water heating job

THAT there may be no misunderstanding, the "domestic hot water system" is that part of the home equipment that provides hot water for the bath, the laundry, and other domestic uses.

The safety angle relates to the subject of controls and other devices that are essential to the safe operation and protection of the hot water tank and heater.

When a hot water tank explodes, the average person casually reads the account in his paper—to him it is just another accident due to causes beyond reasonable control. In some unaccountable way, forces were created that caused the tank to explode.

FORCES ARE EXPLAINABLE

All of these forces are explainable—there is no mystery to it. Forces, which develop to create an explosion, cause costly water damage even if no explosion occurs, or cause scalding water to run from cold water faucets, follow clearly defined natural laws.

Fundamentally, all domestic hot water heating systems, from the most elaborate to the least expensive, are the same.

A full realization of the need of protective devices on hot water range boilers and storage tanks comes only with a complete understanding of the fundamental natural laws governing the physical action of water under varying conditions.

An analysis of domestic hot water heating systems shows conclusively that there are three conditions that can develop to destroy a tank and which must be prevented if the system is to be operated safely during its normal life.

The conditions are listed briefly in the following:

Excessive temperature,
Excessive pressure,
Excessive vacuum.

Of these three conditions, excessive temperature is the most serious hazard, as failure or rupture of the tank, when water is overheated, will result in an explosion, due to the overheated water bursting or flashing into steam as soon as the pressure in the tank is reduced.

The other conditions may not result in immediate failure of the tank, but at best they are causes contributing to its failure long before its normal length of service has been realized.

To understand thoroughly the effects of these conditions on the tank, heater, and system, each must be examined carefully by itself. Interest must be limited to fundamentals, and these fundamentals inherently are common to all systems.

EXCESSIVE TEMPERATURES

Excessive temperature or overheating is any temperature in excess of 212 deg. Fahr. Water at a temperature under 212 deg. Fahr. is a practically incompressible liquid equivalent to a solid. If water is heated and just enough heat is applied to raise it to 212 deg. Fahr., it remains in its liquid state. If, after it has reached 212 deg. Fahr., more heat is applied, the water changes from a liquid to a vapor. In other words, it boils.

During its transformation from a liquid to a vapor, its temperature remains the same. Water can be both a liquid or a vapor (steam) at 212 deg. Fahr., depending upon the amount of heat absorbed. Nature has decreed

Fig. 5—The relief valve may be placed on the hot water outlet

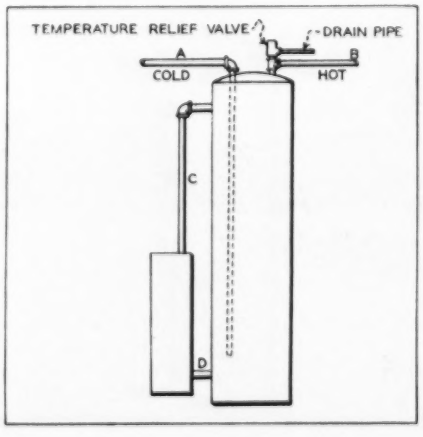


Fig. 6—Tests indicate that the relief must be close to the tank

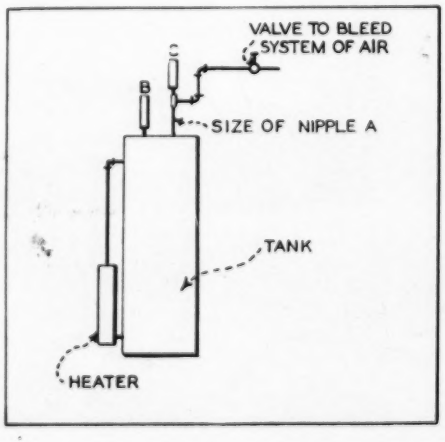
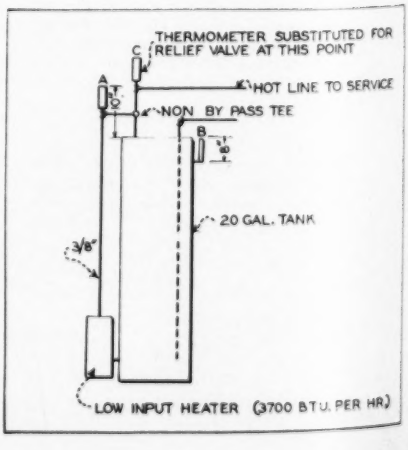


Fig. 7—In this case the relief valve is too far from the tank



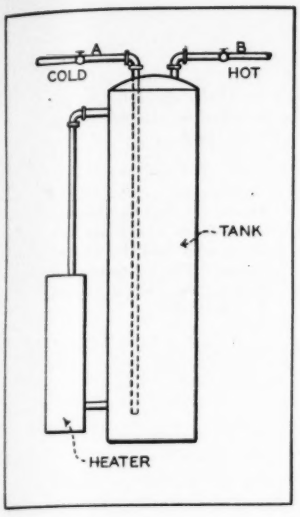


Fig. 1—"Assume a tank operating under a working pressure of 50 lb."

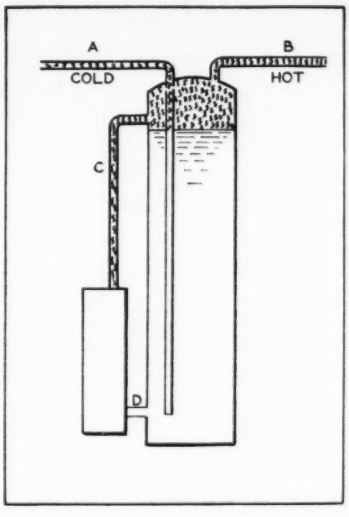


Fig. 2—This illustrates how a tank may become filled with steam

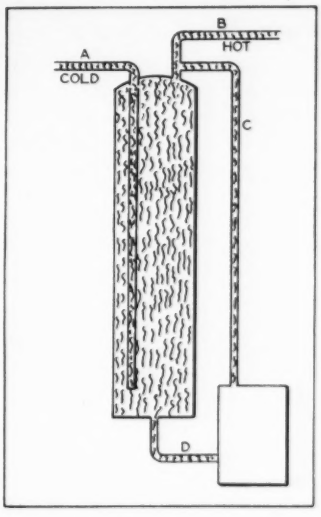


Fig. 3—The condition has now developed when water is forced out

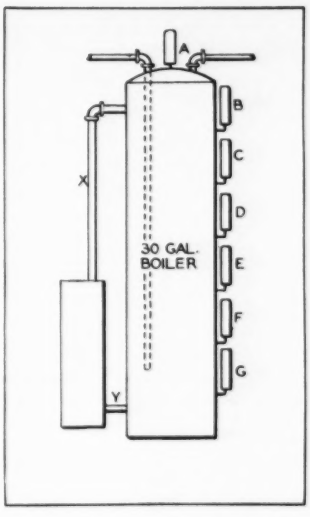


Fig. 4—The valve must be placed at the top for the best results

that water, in an open vessel at atmospheric pressure, cannot be raised to a temperature above 212 deg. Fahr.

Below 212 deg. Fahr. it requires 1 Btu. (heat unit) to raise 1 lb. of water 1 deg. Fahr. When the temperature of the water reaches 212 deg. Fahr. it requires 971 Btu. to change 1 lb. from a liquid at 212 deg. Fahr. to steam at 212 deg. Fahr. This is known as the latent heat of vaporization.

Now, if water is confined in a vessel under pressure, its temperature can be raised. As the pressure of water is raised, its boiling point rises. The boiling point of water bears a definite and known relation to the pressure. For example, if water is confined at 10 lb. pressure, the boiling point will be raised to 240 deg. Fahr. At 50 lb. pressure its boiling point is 298 deg. Fahr.

Since a domestic hot water heating system is under pressure, it becomes possible to raise the temperature of the water in it far above that at which it normally would boil in an open vessel.

TEMPERATURE AND PRESSURE

For the purpose of discussion, let it be assumed that a system, having a 30 gal. tank and a suitable heater, is operating under a working pressure of 50 lb. The normal boiling point of water at this pressure is 298 deg. Fahr., see Fig. 1.

Let the heat input to the tank be controlled so that all of the water in the tank is raised to, and maintained at 296 deg. Fahr. which is just under the boiling point. Suppose that at this point the cold water supply valve at A is closed, holding the pressure at 50 lb. Then suppose a valve at B is opened in the hot water outlet line from the tank, letting water run out and dropping the pressure in the tank to 0 lb. The emission from this line will be at high velocity and made up of wet steam.

At atmospheric pressure the boiling point of water is 212 deg. Fahr. When the hot water valve mentioned in the foregoing was opened, the temperature in the tank was 296 deg. Fahr. or 84 degrees higher than the boiling point of water at atmospheric pressure. Assuming that the tank contained 230 lb. of water, we had 230 multiplied by 84 or 19,320 Btu. more heat in the water than would be needed to raise water to the boiling point at atmospheric pressure (assuming that the water was brought just to the boiling point). This excess heat must be used.

Earlier in this discussion it was shown that when water is brought up to boiling temperature and when more heat is applied, part of the water is changed to steam at the same temperature. The heat used to change water to steam is called the latent heat of vaporization.

At atmospheric pressure, the latent heat of vaporization is 971 Btu.

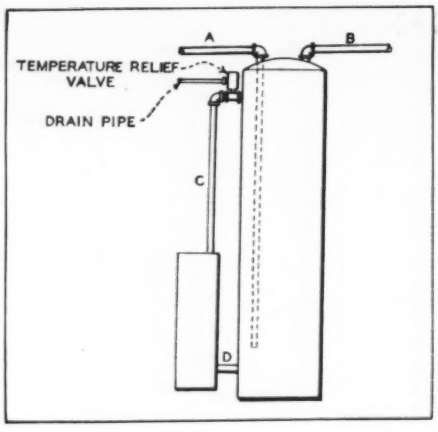
In the foregoing example there were 19,320 Btu. liberated while the pressure was dropping from 50 lb. to atmospheric. These heat units were absorbed by the water in the tank to form steam. The number of pounds of steam generated by this absorption of these excess heat units would be 19,320 divided by 971 or 19.9 lb.

When the hot water valve was opened, approximately 20 lb. of steam were discharged from the tank, or approximately 526 cu. ft. (volume at atmospheric pressure). The total volume of a 30 gallon tank is only approximately 4 cu. ft. The velocity of the steam as it expands into the atmosphere assumes the speed of a flash.

Apply this problem to actual conditions. A domestic range boiler under 50 lb. working pressure, with the water contained therein at 296 deg. Fahr. fails due to a weakness of the structure, and liberates water. The pressure drops in the tank. If the rupture is large, the pressure may drop to atmospheric. This liberates a large number of heat units which immediately are absorbed by the water, causing part of this water to flash into steam.

EFFECT OF RUPTURE

Steam thus formed then escapes into the atmosphere at high velocity. The result can be likened to a rocket with the tank being driven out of place, usually up through the ceiling or floor, wrecking the building and endangering lives. It is clearly evident that the higher the pressure, the greater the amount of liberated heat units, and should the tank fail, the more disastrous will be the effect of the explosion.



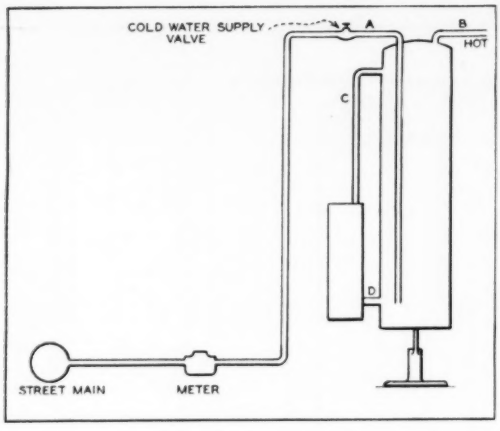


Fig. 8—This illustrates another manner in which the relief valve may be installed on the hot water tank

Fig. 9—There are two fundamental types of systems which are the open main system and the closed main system. The drawing at right shows the open main hook-up

This is only one phase of the problem of overheating.

Exploring further, it is found that under pressure, steam can be generated in a range boiler—generated to the extent of partially, and even completely, filling the range boiler.

This is illustrated schematically in Fig. 2 which shows a tank and heater. It is assumed that the tank is operating at 50 lb. pressure, which is an average pressure. The heater is forgotten and allowed to run uncontrolled, with no protective devices. At 298 deg. Fahr. the water reaches boiling temperature. As the heat input continues, water passing through the heater is changed to steam and rises in the circulating pipe and gradually displaces the water in the top of the tank. It must be remembered that as steam is generated it tends to expand and build up pressure, but as the cold water supply A is open to the street, a pressure cannot be built up in the tank in excess of the street pressure. Therefore, the tendency is for the steam to flow into the cold supply, forcing the water back into the main. If the vent holes in the direction pipe are stopped, the water in the tank will be forced out into the main. In either case, should the heat input continue, the tank will be filled with steam down to the lowest heater connection D, and, if the heater is below the tank Fig. 3, it is probable that the tank will be completely filled with steam. Consider what now exists.

Not only is the tank partially, or even wholly, filled with steam, but there are steam and hot water in the cold water supply pipes. Should a closet be flushed or a cold water fixture be opened, there is serious danger of scalding and probable damage to some expensive plumbing fixture. This is the least serious side of the problem. Consider the enormous, stored-up energy which, if let loose, would destroy the building with possible loss of life. Under these conditions, with the water line below the heater shell or tubes, the heater would be unprotected from the flame. The tubes and shell would be burned and probably fail. High pressure steam would rush out through the broken heater and tend to rip it from its setting. The tank would probably be sufficiently strained by the violence of the steam discharge to rupture, liberate its latent energy and cause an explosion of considerable magnitude.

A small leak that develops in an overheated tank will not necessarily cause an explosion. To liberate heat which causes steam to form, there must be a reduction of pressure in the tank. The leak must let water out faster than it is supplied.

But, if as in the second phase, there is an accumulation of steam in the tank, the velocity of discharge might tear a hole of sufficient size to cause a serious explosion.

The seriousness of the situation is not, and cannot be, exaggerated. Conditions illustrated in this discussion can, and do, exist more frequently than is generally known. Such conditions become generally evident only when a tank explodes. That there are not more explosions is due to good fortune, rather than to serious attention to the protection of the system.

What can be done to guard against these dangers and prevent overheating?

Partial security can be had by installing a thermostat to control the heat input, shutting off the heat before the temperature rises to a dangerous degree. However, this type of control is not possible with all types of heaters. With some, it is impossible to control the heat input. With others, a thermostatic control is not fully effective, as the heat input cannot be stopped entirely.

Irrespective of the type of heater, there is an effective means available to prevent overheating—this means being a relieving device that will open before the water reaches a dangerous temperature, allowing the hottest water to run out of the tank and cold water to replace it cooling the tank. Such means should be used on all domestic range boilers whether thermostatically controlled or otherwise. It is fundamental that, if hot water runs out of a tank and cold enters it, the tank cannot overheat. Enough water, however, must be discharged in a given time, to take out as much heat as the heater puts in in the same time.

THERMOSTATIC DEVICES

Hot water is always at the top, see Fig. 4. Such a statement is axiomatic and does not require proof in this article. This definitely requires that the valve be placed at the top of the tank if it is to be at the hottest point. Manufacturers, in some sections, are providing their tanks with a tapping at the upper end for this purpose, and always within 6 in. of the top. Where tanks are not so provided, there are other positions that are quite safe.

The thermostatic relieving device may be installed in the hot water outlet as shown in Fig. 5, but the thermostatic element must be within 3 in. of the top of the tank. Water does not circulate readily inside of a pipe, consequently, the temperature drops rapidly as the distance from the tank increases.

The tables which tie in with Figs. 6 and 7, and which are marked Tables 1 and 2, indicate the result of a few

tests conducted to determine what differences might be expected.

Evidence disclosed by these tests indicates clearly the need of placing the relieving device close to the tank. Many times a device is defeated in its purpose by incorrect installation.

Another position is shown in Fig. 8, in the upper circulating pipe C between the heater and the tank. It is a much disputed position, but it follows that the water entering the tank from the heater must pass the relieving device; therefore, it should be true that if temperatures in excess of 212 deg. Fahr. are prevented from entering the tank, it cannot overheat.

The relieving device should always be close to the tank when not directly in it because quite frequently separate heaters are connected for winter service to supply the domestic hot water, and are connected by different pipes that normally circulate between the heater and tank. For this reason, the relieving device must be close to the tank, so that it may be influenced by the temperature in the tank and give adequate protection against excessive temperature.

Contrary to the belief and doctrine of many, a thermostatic relieving device is of no value whatsoever when installed in the cold water line. If it does open, it cannot discharge hot water. It is impossible to let hot water out of a tank and cold water into it through the same pipe at the same time.

If overheating is prevented, failure or rupture of the tank from corrosion or other causes cannot result in a damaging explosion.

CAUSE OF TANK FAILURE

Earlier in this discussion it was said that excessive pressure was a contributing cause of tank failure. This generally is true, but excessive pressure can cause immediate failure of the tank with costly water damage to home and furnishings.

Excessive pressure is any pressure above that for which a manufacturer rates a tank.

There are several conditions that develop to create excessive pressures, but chiefly it is due to the action of water while being heated.

When heated, water expands. If a body of water is heated from 38 deg. Fahr. to 212 deg. Fahr. it increases 4 per cent in volume. Should the temperature rise be less, the increase in volume would be proportionately less. For example, if all the water were heated from 60 deg. Fahr. to 160 deg. Fahr., the increase in volume due to expansion would amount to 2.3 per cent.

Confined in a domestic heating system, water behaves according to natural laws, while being heated it expands.

If all the water in a 30 gal. range boiler is raised from 60 deg. Fahr. to 160 deg. Fahr., it will increase in volume 2.3 per cent. It will grow from 30 gal. to 30.69 gal.

It is inconceivable that any system can be stretched to accommodate an extra 0.7 gallons—almost 3 quarts. A heating system is constructed of rigid materials and unless means are provided to allow the extra volume of water to escape, some part of the equipment will be ruptured, usually the tank. Confined in a closed system, water, when heated, will build up pressure so rapidly that a tank may be destroyed with a temperature rise of but a very few degrees.

That a clear picture of the two fundamental types of systems may be had, let them be classified as follows:

1st—the open main system shown in Fig. 9.

2nd—the closed main system shown in Fig. 10.

OPEN AND CLOSED SYSTEMS

The former is one in which the cold water supply main between the street main and domestic system is open constantly, and in which water can flow both into the house service pipes or back into the street main from the house service pipes.

The closed main system is one in which the cold water supply main within the house is fitted with a check valve or some other device that will allow a flow only from the street main to the house service pipes. Such a system is mandatory in many sections to prevent hot water from backing up into the cold water supply main and damaging the water meter. Pressure regulators or reducing valves, used to cut down pressure in the house service pipes, act the same as a check valve and permit a flow only in one direction—from street main to house service pipes.

In the open main system, when water expands while being heated, pressure cannot build up, as the extra volume backs through the cold water supply pipes into the street mains. Prevailing street main pressures are maintained in the system.

Contrast this with the closed main system. As water in this system expands, it is prevented from backing into the street main. It is quite essential that some automatic means be provided to allow water to escape from the system.

The open main system accidentally can be converted

(Continued on Page 165)

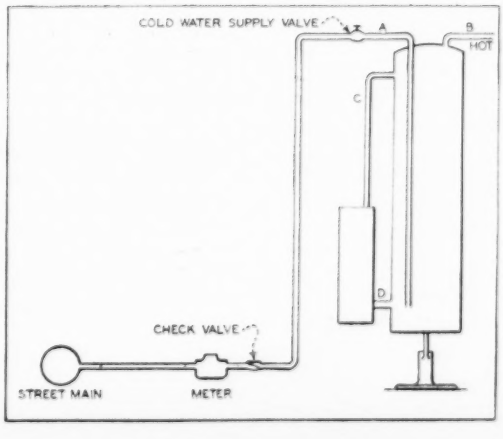


Fig. 10—Here are shown the connections for a closed main system. In this system there is a check valve which will allow a flow of water only from the street main to the house

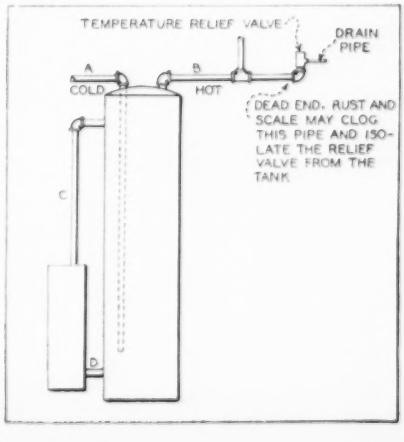
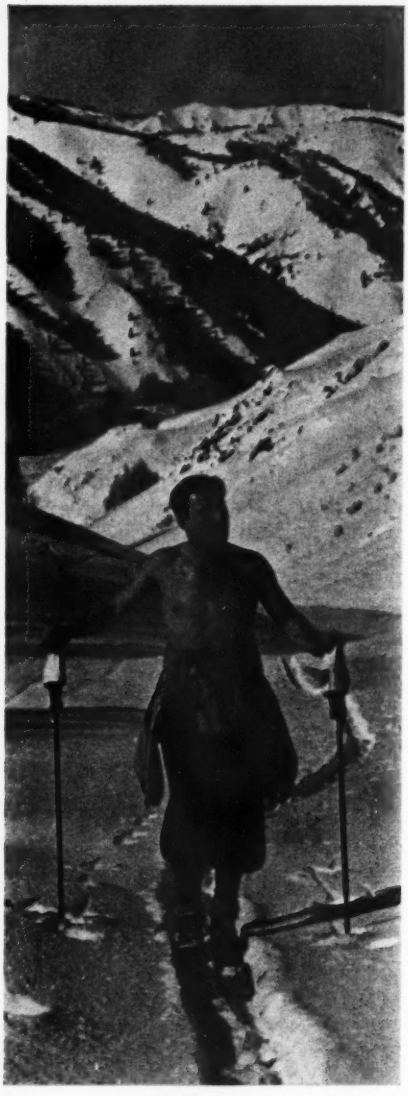


Fig. 11—A dead end, as shown here, may at first operate satisfactorily but may later accumulate rust and scale and thus isolate the relief valve

When the Sun



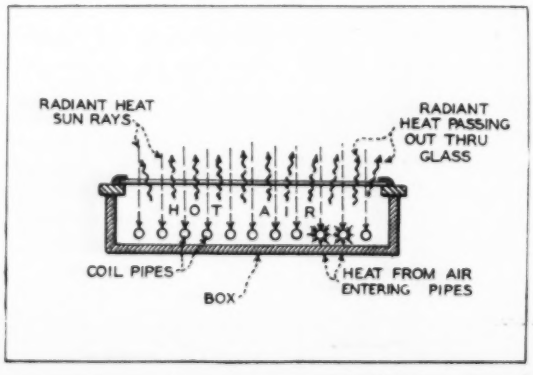
Radiant heat from the sun's rays is responsible for such light clothing

THE use of solar heaters is limited generally to those portions of the country where the sun is sufficiently dependable to be counted upon for heating water practically every day in the year. The major portion of such heaters are installed in the southern part of California and in Florida. Those of our readers who have been engaged in this work have asked for information in regard to the method of design, the proportions, pipe surface, and so on. Apparently the installations in many cases are not doing all that was expected even though the sun puts in appearance with its accustomed regularity. In an effort to be of some aid to those engaged in this type of work the following information has been collected.

In the first place the solar heater is an intermittent device operating only when the sun shines, and at its maximum only when the sun is highest in the sky, i. e., around noon. Some heat, however, is received from the sun as early as 8:00 a. m. in the morning and as late as 4:00 p. m. in afternoon. During the summer period these hours may even be somewhat extended but during the winter period it is doubtful that any longer time than this can be considered for effective heating.

The tank capacity, therefore, must be sufficient to carry over the 16 hour period occurring between 4:00 p. m. in the afternon and 8:00 a. m., the following morning or a period of 16 hours. As these hours include those of the night it probably is safe to say that not over 50 per cent of the total hot water used per day of 24 hours will be required during the 16 hour period. For the reason that about 25 per cent of the water must be retained in the tank at the completion of the 16 hour period so as to prevent the cooling off of the balance of the water to a point where it no longer is sufficiently heated, it follows that the storage capacity of the tank should be 50 per cent of the daily usage plus 25 per cent of the 50 per cent or about 62½ per cent of the daily hot water demand. Thus for an installation where the daily hot water requirement is estimated at 100 gal., the storage capacity of the tank will be about 60 gal. To prevent radiation of heat from the water while stored, the tank should be well insulated with an efficient type of insulation not less than 1 in. thick and the circulation pipes to the solar heater and return should be treated similarly.

Fig. 1—"as the box temperature rises the radiation of heat outward . . . causes heat loss until a balanced condition is set up."



The position of the storage tank must be above the level of the solar heater, as the higher the tank is above the heater the better will be the gravity circulation between the two. Installations where the bottom of the tank is only a foot or two above the solar heater result in so little circulation head that when the tank becomes partially heated, the circulation slows down and the full benefit is not received. For this reason the location of

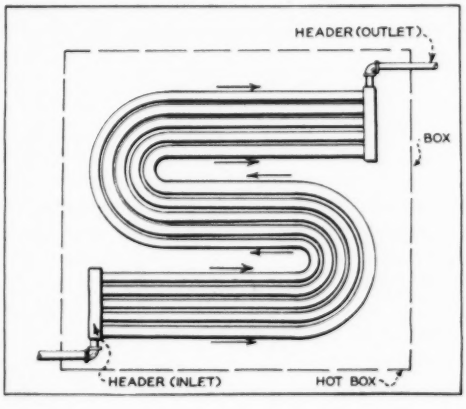
Shines—*How to Use It . . . .*

This article tells how solar water heaters can be installed using the radiant heat of the sun, with or without other heat

the tank in the highest portion of the house—usually under the peak of the roof—is desirable and placing of the solar heater at a level considerably lower—such as on the porch roof, or on the roof of a one story portion of the building if such exists—will give a better circulation and a much improved operation of the system.

The solar heater is simply a coil of pipe exposed to the sun in a "hot box" in which the air is confined and the temperature is increased in the same manner that a greenhouse employs the sun to obtain higher

Fig. 2—This indicates the way in which small pipe is connected into headers at the end connections



temperatures and the sun effect through windows of buildings causes a temperature rise in the room.

The coil obtains heat from two sources: viz., the rays of the sun striking on the exposed portion of the pipe coil surface and the heat from the box which heats the air surrounding the coil and enters the coil through the entire coil surface. Against this is the fact that, as the box temperature rises, the radiation of heat outward from the box (especially through the glass top) causes a greater and greater heat loss, until a balanced heat condition is set up. See Fig. 1. Careful calculations seem to indicate that if copper pipe is used about ½ sq. ft. of pipe surface is required for every gallon of hot water used per day in climates where the lowest outside temperature does not go below 70 deg. Fahr. in the day time.

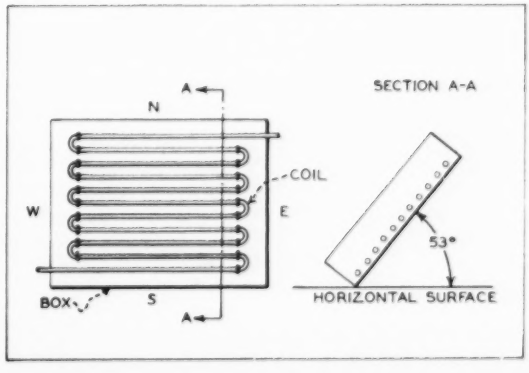
The size of pipe should be 1 in., or 1¼ in., due to the necessity of reducing pipe friction impeding the circulation to the lowest possible limit, but if smaller pipes are used, then they should be connected up in parallel to headers so that the sum of the interior cross sectional areas of all the pipes running from header to header will at least equal a 1¼ in. pipe area. This is illustrated in Fig. 2.

A return bend coil as shown in Fig. 3 is considered well suited for a square box installation although the suggestion for the use of smaller pipes with headers given previously is entirely satisfactory.

The coil pipes should run east and west and the north end of the coil and box should be elevated so as to make the coil perpendicular to the sun's rays at noon. At around 30 degrees north latitude, which approximates the conditions in southern California and Florida, the angle that the top of the box should make with the horizontal should be about 53 degrees as shown in Fig. 3. The supply to the storage tank should be taken from the top of the coil and the cold water from the tank to be heated should enter the bottom of the coil.

The hot box should be well constructed and painted white so as to reflect the heat striking the bottom into

Fig. 3—"box should be elevated so as to make the coil perpendicular to the sun's rays at noon . . . about 53 degrees"



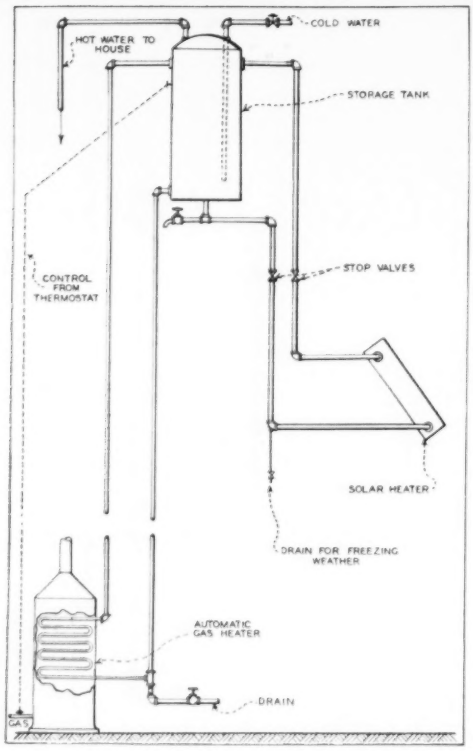


Fig. 5—This indicates one way in which a solar water heater may be used with some type of auxiliary heating equipment. Note location of the thermostatic control and the cold weather drain

the coil as far as possible. The glass top should be airtight and, of course, rainproof. The angle of slope suggested will do much to make this possible by simply lapping the glass in a manner similar to that employed for a shingle roof. The sides of the box should be as low as possible to avoid morning and evening shadows cutting off the sun's rays and double glass should be employed only where daily temperatures reach 50 deg. Fahr. or considerably less. When used for temperatures during the day of 70 deg. Fahr. the second sheet of glass absorbs more heat out of the sun than its insulating effect on the radiation from the box really is worth but when the lower temperatures are to be met its insulating value increases in proportion.

In the box the pipes of the coil should be spaced at about 3 in. centers if 1 in., or 1¼ in. pipe is used, but if smaller pipes are employed they may be placed closer

TABLE I

TANK SIZES, SOLAR HEATER COPPER PIPE AREAS AND HOT BOX AREAS

Gallons of Hot Water Used per Day of 24 Hrs. and Heated 50 deg. Fahr.....	50	75	100	125	150	200
Storage Tank Cap., gal.....	30	45	60	80	90	135
Sq. Ft. of Copper Pipe Surface for Solar Heater.....	28	41	55	71	83	117
Sq. Ft. Area in Hot Box....	28	41	55	71	83	117

together so long as the coil covers only about two-thirds of the total box area. The reason for this is that the size of the box really determines how much heat is received and any reduction in box size will result in a lower air temperature being generated in the box with a corresponding reduction of heat that the coil can absorb. The box area also should be about ½ sq. ft. per gallon of water heated per 24 hour day based on heating 50 per cent of the total water for day use and 62½ per cent of the total water for night use and retention in the tank.

For the practical application of the data given, Table I has been produced. This table gives at a glance the size of storage tank, square feet of coil surface and square feet of box area required for any daily hot water consumption of 50 gal. to 200 gal.

A wider application of solar water heaters is also possible through their combination with some auxiliary source of heat. In regions where the sun cannot be depended on at all times it might be feasible to use these heaters with one of the standard methods of heating. The sun heat can be utilized as long as it is available, and when conditions are such that there is not sufficient heat from the sun, or when the draw on the tank is too heavy, the fuel operated heater can be used. An automatic arrangement can be installed with a thermostat in the storage tank for turning on the fuel operated heater only when this becomes necessary. Figs. 4 and 5 indicate two such installations where different types of heaters are used. Circulation pipes are carried down from the fuel heater and the heater is turned off and on automatically by the thermostat, which is located about two-thirds the height of the storage tank. If there is a possibility that freezing may occur, provisions should be made to drain the heater and piping.

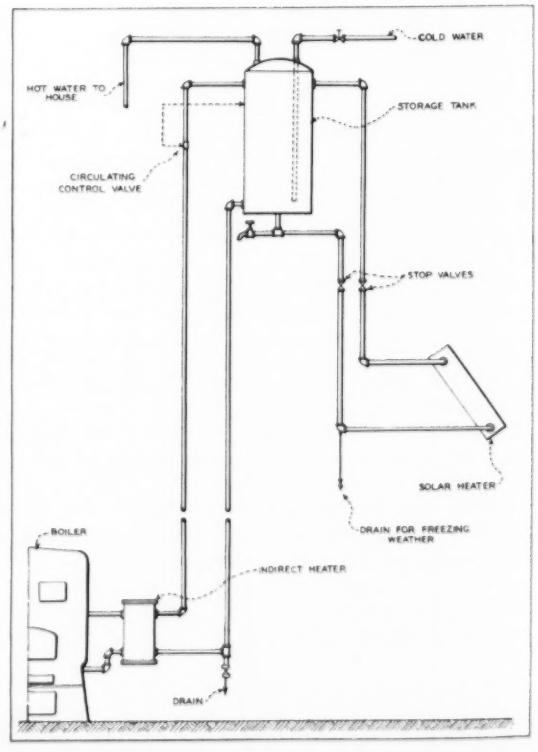


Fig. 6—Another method of connecting a solar heater to a fuel water heater. In both cases pipes are carried down to the heater and the heater is controlled thermostatically

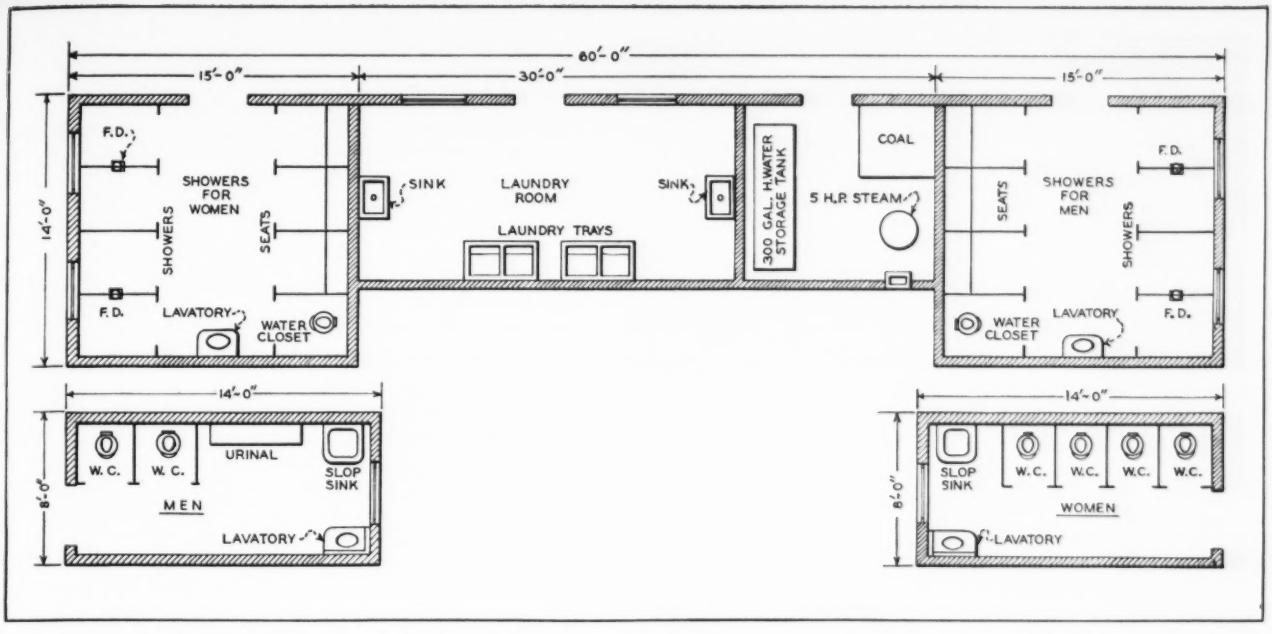


Fig. 1—Here is a typical toilet arrangement showing the locatio n of the toilets, showers, laundry, laid out in an effective manner

Nationwide—*Is Trailer Problem*

The increasing spread of trailer camps presents new problems in plumbing. This article tells how to do this work

THE years 1936 and 1937 have seen the automobile trailers multiply on our highways, and one of the consequences is the serious sanitary problem thereby presented. This problem directly concerns the state, and both directly and indirectly concerns the individual town and city. Investigation shows that solution of the problem is being sought both by the states and by their subdivisions.

As we shall see, proper sanitation for trailer camps will lead to much new business for the plumbing trade, and it is this phase of the matter that makes trailer camp sanitation a proper subject for our consideration.

The overnight cabin is a problem in sanitation also, but more easily handled, for the cabin is stationary, while the trailer on the move is a problem for one community tonight and for another community tomorrow night.

The trailer camp problem has become particularly acute in those states that handle large crowds of people on summer vacation. Our investigation shows that many of these states are only just awakening to the health problems involved, while other states have gone a considerable distance in working out an effective solution. Communications with state boards of health bring the following information regarding tourist camp provisions.

Maine.—Probably no state in the union has handled the general problem of overnight camps, tourists' homes, etc., more effectively than this state. All of these lodging places are fully under state inspection when first installed or erected, and periodically thereafter. In 1937, state legislation classified trailer camps with overnight camps. The following statement is taken from their correspondence: "We are requiring such camps to conform with our overnight camp regulations, and in addition we require special facilities for the disposal of waste from trailer sinks and commodes."

TRAILER CAMP BEING CONSTRUCTED

In Maine the U. S. Resettlement Administration is engaged in the construction of trailer camps at Oldtown, Weld, Seawall, Edmunds and Belmont.

New Hampshire.—In May of this year, very thorough and detailed requirements for trailer and trailer camp sanitation were passed by the New Hampshire legislature, which are widely distributed in pamphlet form. The principle requirements appears in the following paragraph taken from this pamphlet.

Fig. 2—A general view of a tourist camp which indicates the elaborate manner in which these houses are constructed

Fig. 3—This view shows the women's rest room which is located in one of the camps in the south

Fig. 4—Above is a row of trailers parked along the road in the camp area

Fig. 5—Below is shown a view of an 80 ft. fresh water swimming pool, indicating the extensive manner in which camps are designed

Regulation 5. *Wastes Disposal from Trailer Coaches.* No liquid wastes or excreta shall be disposed of other than by emptying into a public or camp sewerage system, septic tank, cesspool or manure pit; provided that in isolated localities remote from camps or habitations and where no objection thereto may be raised by property holders, such wastes and garbage may be disposed of by burying in the soil, with an earth covering of not less than six inches. No wastes shall be thus disposed of at a point less than two hundred feet from any well, spring, or source of public water supply, or less than seventy-five feet from the banks of any lake, pond, stream or water course not a source of public water supply, or less than fifty feet from any highway gutter. At no time shall any wastes be deposited upon the surface of the ground.

INDIVIDUAL REQUIREMENTS OF STATES

Vermont.—No state law covers this subject. Although considered by the last legislature, no action was taken.

Massachusetts.—This state has no laws on the subject. The State Board of Health is at the present time investigating the subject as applying to Barnstable, Bristol and Plymouth counties.

Rhode Island.—While the state issues general sanitary instructions concerning camps, bathing beaches, etc., we do not understand that any state action has yet been taken on trailer camp sanitation.

Connecticut.—The State Board of Health is now considering special legislation on the subject, but no state regulation exists.

New York.—This state apparently is making no active, constructive effort to handle the trailer and trailer camp problem, although there are over 2,000 camps of various types in the state. A statement from correspondence with the State Board of Health is as follows: "Trailer camps, in our opinion, differ in no respect from other types of establishments for temporary occupancy by persons."

New Jersey.—According to the State Board of Health, "Although the problem has not as yet become one of great magnitude in this state, this Department has been collecting data relating to trailer camps for the past several months."

Wisconsin.—The State Board of Health states, "There is pending in our legislature a very comprehensive measure seeking to regulate the subject of automobile trailer camps."

The states of Florida and Colorado stand out as two states that have accomplished real results, and we are going to devote the remainder of this article to the results they have attained.

Florida.—To start with, Florida state regulations give the following definition: "A tourist camp is hereby defined to be any place where three or more tents, tent houses, camp cottages, house cars or trailers are located." Two of the most important state regulations are as follows:

Sec. 6. Camps shall be provided with safe, sanitary means of sewage and waste disposal. Where city sewerage is available water flush toilets shall be installed and maintained. However, in the absence of sewerage, septic tanks of plan approved

Fig. 6—This attractive spot, which has been artificially landscaped, is located in one of the trailer camp areas mentioned

by the State Board of Health with water flush fixtures shall be used.

NOTE: At least one stool and one urinal shall be provided for males and one stool for females—for camps having a capacity of 20 people or less. Above this number of people the number of stools should be based upon a ratio of two stools for every 30 people accommodated, or fraction thereof, counting three people per car and one urinal for every additional 30 males. Adequate number of lavatories with running water shall be provided, together with soap and individual towels.

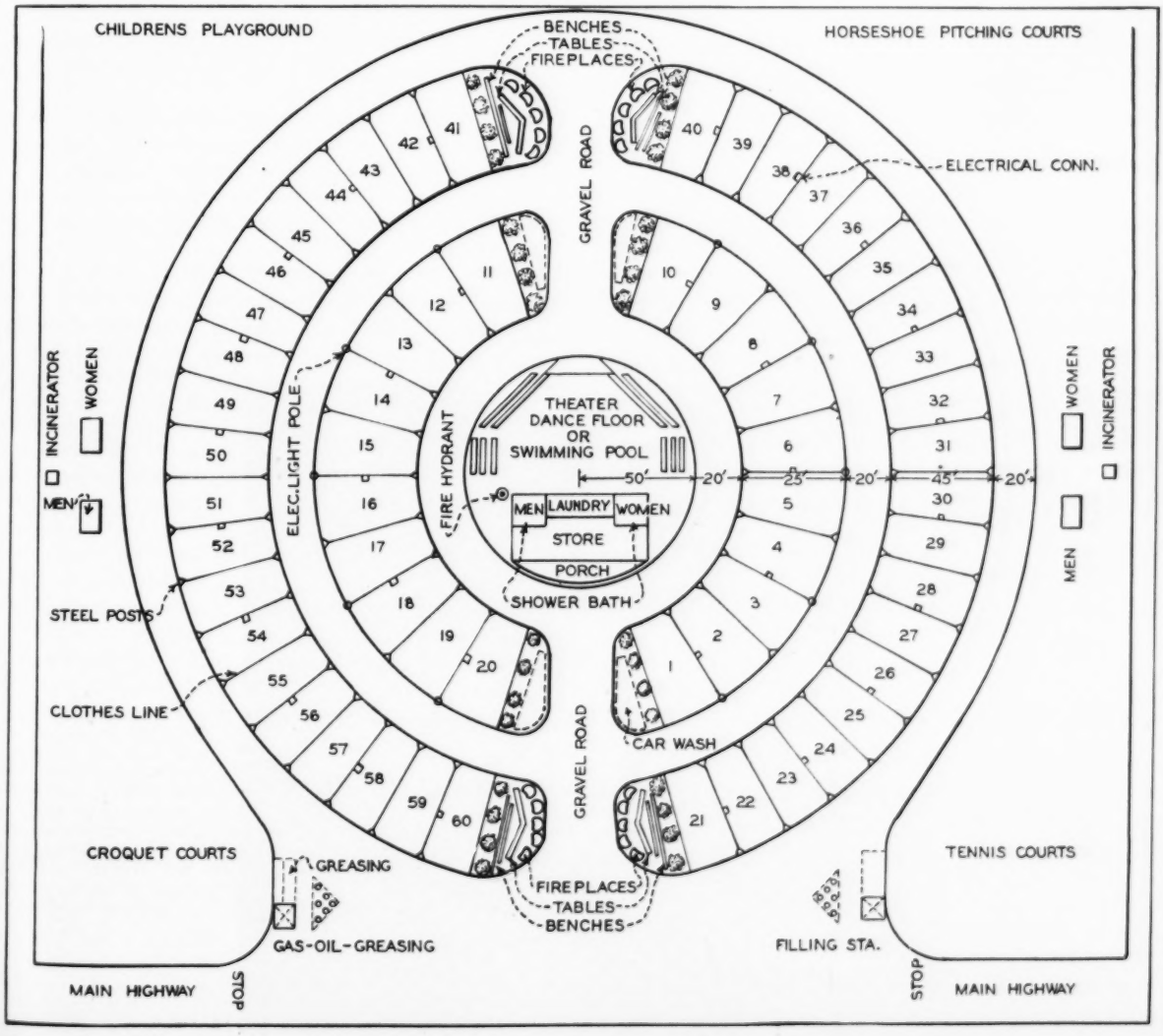
Sec. 8. Camps shall be provided with conveniently located shower bath compartments for both sexes. NOTE: A minimum of one shower head for each sex shall be provided for camps up to twenty people, and one additional for each sex for each additional 20 people or less. Special methods of waste water disposal should be used if connection to city sewer is impossible. Concrete floors to shower rooms must be provided.

In Fig. 7 there is shown a ground plan indicating the ground space divided into trailer lots, with a septic tank for each trailer lot. There is a field of absorption tile underlying the trailer lots.

It is clear that with this disposal arrangement, when

(Continued on page 163)

Fig. 7—This drawing shows the general layout of a trailer camp. The individual and communal buidings and amusements are indicated here. The location of the showers, laundry, car wash, swimming pool and rest rooms are all indicated on this plan



23 Employes—*Twenty-three*

"Gas and electric sales carried us through the depression with our colors flying." Refrigerators, radios and heaters swell volume

THE other day the McKay Plumbing Company of Jackson, Miss., sent a man out to unstop a closet bowl. Ordinarily a job of this kind requires about one hour's time with a charge of $1.50 for the labor.

But the plumber in this case was a salesman also, adept at using his head as well as his hands. He turned in a ticket at the end of the day for $24.63. This included six hours of time as well as the sale of $15.15 worth of plumbing merchandise which he noticed the customer needed. The attached statement shows the items he sold.

This is not an exceptional case because all of the company's 23 employes from J. P. McKay, president, on down to the janitor are salesmen. That explains why the concern was able to do a $100,000 business last year divided as follows: plumbing (time and materials) 49 per cent; electrical appliances (refrigerators, radios, etc.) 23 per cent and gas appliances (ranges, space heaters, etc.) 28 per cent.

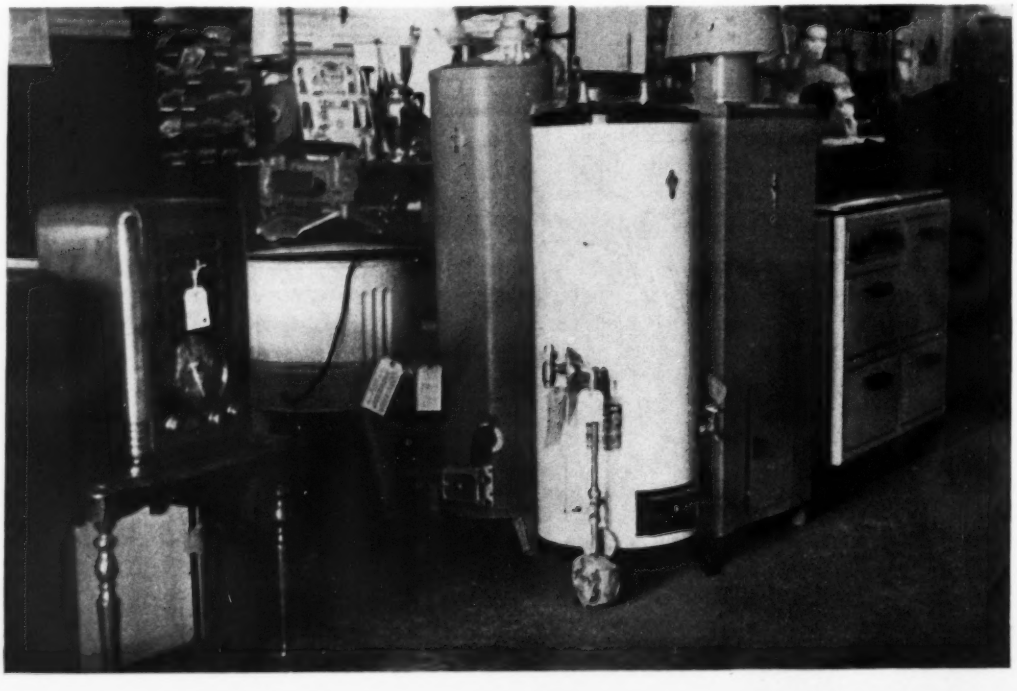
To deal a little further in sales statistics this concern sold 900 gas space heaters last year ranging in price from $12.50 to $15.00. It also sold about 75 electric refrigerators. Radio sales run about 50 per month, sometimes a half dozen or more on Saturday. About $6,000 worth of gas ranges were sold and installed during the last year.

Also in 1936 the company sold nearly $5,000 worth of rubber goods, cleaners, polishes and the like as put out by a leading manufacturer of such bathroom specialties. In fact this manufacturer rates two of McKay's journeymen as the two best salesmen of these items in America. Their names ought to go in print, so here they are: C. D. McNeese and A. C. Dear.

"Apparently some master plumbers believe they cannot operate a showroom and do a good selling job on fixtures and appliances, but if all we had to sell was labor we would close up tomorrow," said President McKay. "We won't have a man in our organization who is not a salesman, because otherwise he cannot make any money for himself or us.

"Suppose one of our men goes out, punches a door bell and says to the woman of the house: 'Mrs. Smith, I am from the McKay Plumbing Company. I have come out to see if I can interest you in some of our merchandise.' Most likely he would get the door closed in his face in short order.

"But let this man go out on a call to fix a leaking faucet. The owner is glad to see him, invites him in. He gets by the first line of defense and if while in the home he can't find something the woman needs and interest her in it he is a poor salesman indeed. He has free access to the bathroom and to the kitchen, and can easily take an inventory of their equipment.



Here is a view of one portion of the showroom in which radios, washing machines, water heaters and gas ranges are on display. As customers come in to pay their bills, they are exposed to this wide range of modern merchandise

Salesmen . . .

"Engaging the customer in conversation the plumber-salesman 'talks up' whatever she may show an interest in. It may be a refrigerator, an extra sink, a closet seat, a handle on a faucet or a porcelain cleaner. Suffice to say the McKay representative has an eye and ear for business. It is rare indeed that any job runs less than $4 or $5. We don't put washers on faucets, we rebuild faucets. And while we are rebuilding faucets, we get in some mighty good selling talk for other merchandise."

Where a McKay representative makes an appliance sale on his own he gets 10 per cent commission. This applies to all employes whose commission checks sometimes surpass their regular salaries. But if a journeyman runs across a prospect he can't handle himself he turns her name over to President McKay, or his brother, G. H. McKay. Where they make the sale, the journeyman turning in the tip gets a 5 per cent commission.

A meeting of the McKay organization is held once a month. The bookkeeper presents the figures showing who is making money for the organization and who is not. The proprietors have to hustle, or else some employe will outsell them and that would be humiliating.

The McKay company doesn't go out for a lot of big plumbing jobs on new buildings. They sell a lot of new fixtures in old homes. That is because their men, sent out on repair jobs, are so adept at the selling art.

Gas appliances accounted for 23 per cent of the firm's volume, and it had to fight to get its share of this business in view of the keen competition. Other dealers sometimes call on McKay to install gas appliances sold by them.

A very complete line of both electrical and gas appliances are carried including two lines of radios, two lines of refrigerators and one line of ranges. Sales are made on usual terms.

While carrying a wide range of plumbing parts, the concern depends on the supply houses to furnish showrooms for bathtubs and other heavy bathroom fixtures. Contracts are taken only on a "time and material" basis.

"Gas and electric appliances carried us through the depression with our colors flying," said President McKay. "Persons having plumbing work to be done were able to find us, which is not always the case where the plumber does not maintain an established place of business. Now that the plumbing business is back again to normal, we can use our contacts with the public, not only to sell more fixtures but also appliances."

INVOICE

McKAY

Plumbing Company

Office Phone 6881-6882 124 N. Lamar St. Residence Phone 1290

Jackson, Miss. April 17 193 7

[redacted]

Our Repair Work Is Cash

DATE	ITEMS	AMOUNT	TOTAL
4/8/37	Unstopping sewer and repairing plumbing		
	6-flush ball stems	.95	
	7-bibb washers	.70	
	4-ton bibb washers	.40	
	3-flush ball guides	2.25	
	3-copper float rods	.75	
	1-copper floats	.75	
	3-flush ball(3 yrs)	3.75	
	1-sink handle	.35	
	2-S.C. washers	.20	
	1-can waste pipe cleaner	.75	
	1-lavatory faucet	1.50	
	1-ball cock	.30	
	2-closet seat bumpers	.30	
	6-hours plumber	12.00	
		24.15	
	Sales tax 2%	.48	
			$24.63

BILLS ARE DUE WHEN PRESENTED

J. P. McKay, president McKay Plumbing Company, is shown in the top picture describing faucets to a prospective customer

Here is an invoice for a job which started with a call which normally would bring only $1.50 for labor

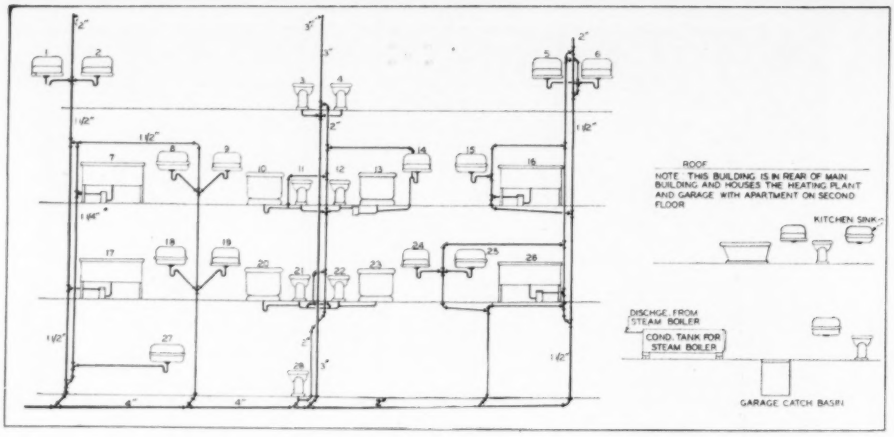

ROOF
NOTE THIS BUILDING IS IN REAR OF MAIN BUILDING AND HOUSES THE HEATING PLANT AND GARAGE WITH APARTMENT ON SECOND FLOOR
KITCHEN SINK
DISCHGE. FROM STEAM BOILER
COND. TANK FOR STEAM BOILER
GARAGE CATCH BASIN

Fig. 1—Here is the new drawing problem. Correct the mistakes according to your code and send in the revised drawing, together with your individual comments

Circuit—*and Loop Venting*. . .

This month's problem discusses use of circuit and loop venting

THE problem to be dealt with in this article was presented in Fig. 12, on page 88 of the June issue of DOMESTIC ENGINEERING. The layout presented in the original elevation is typical of the plumbing to be found in such buildings as hotels and office buildings, with lines or batteries of such fixtures as water closets, urinals, and lavatories.

This elevation, in common with the elevations which have preceded it in the series, have not been accompanied with floor plans. Therefore there is no way of knowing whether certain fixtures are at the front or the rear of the building or at some point midway. For this reason it is as correct to use four stacks to serve the plumbing in this building, as shown in Fig. 2, or two as in Fig. 3 or as is shown in Figs. 4, 5 and 6. These problems give experience in methods principally. Later on problems involving the use of floor and cellar plans will be presented.

BATHROOM CONNECTIONS

Fig. 2 is by E. J. T., New Jersey. It does not seem quite consistent to connect the bath trap B on the top floor into one stack and the other five fixtures in this group into another stack. They are obviously the fixtures of two bath rooms, and it would be unusual to use two different stacks in serving them. Therefore the way in which the work has been done in Fig. 3 seems more consistent.

It would be safer to vent the trap C, as at times considerable waste might be flowing through the line into which it connects, and therefore the matter of siphonage would need to be taken into account.

The original drawing shows the two groups of urinals served with what seem to be crown vents. However, in view of the fact that continuous vents are used entirely on the remainder of the work, we take it that if E. J. T. actually had the job to install, he would see to it that continuous vents were used on the urinals, and that crown vents are not intended.

Beyond these minor criticisms, Fig. 2 is an excellent layout.

The principal criticism of Fig. 3, which is by F. W. H. Michigan, concerns one point in venting, but quite an important point. At the locations marked A, B, C and D, the under floor vent connections of two adjacent fixtures are joined together below the floor line. This may have been done to save cost, but for some reason has not been done in more than the four instances. There is a fundamental law in venting which requires that all vents rise to a point above the overflow line of the fixture which they serve, before connecting with any other vent line. This is a necessary law because when violated, as in these four instances, waste from one fixture may flow through its own vent and the vent of the adjacent fixture. Thus the two vents become waste lines. Eventually they will become clogged, and then their purpose is entirely defeated. The single vent connection at E is wrong, for the same reason.

CROWN VENTING

As in the case of Fig. 2 all the urinals appear to have crown vents, and because all other fixtures are provided with continuous vents, we do not believe crown vents are intended. As already pointed out in Fig. 3 two stacks are used, and this seems a logical thing to do.

Fig. 4 calls special attention to the fact that the unit vent is used in every single instance where such practice

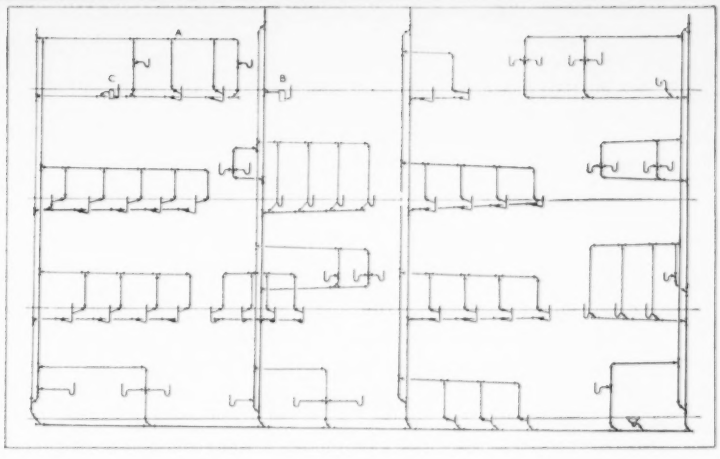
is possible. There may be some to whom the term "unit vent" is new. To these we will explain that this is the name given to a vent which serves two fixtures, when such fixtures have one waste and vent fitting used in common. Use of this type of vent effects a saving in cost of installation. The use of two main vent stacks, one at either end of the long line of fixtures makes a very orderly, systematic method of venting.

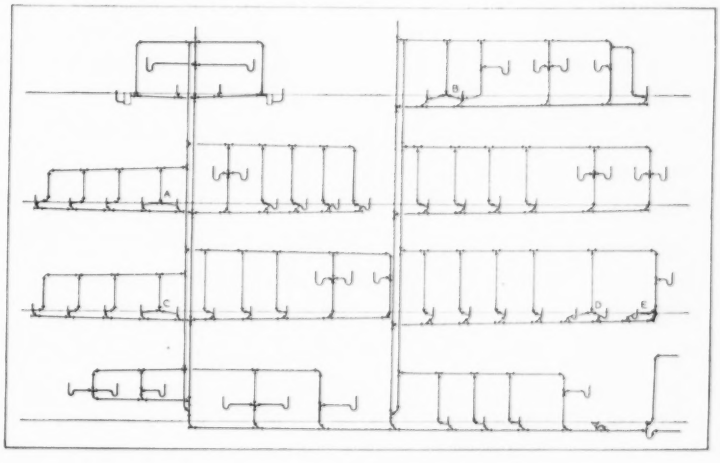
It will be noted that a main trap and fresh air inlet are used, but that the fresh air is given a very peculiar connection, that is, it is connected into the venting system of the building, rather than being carried to the outside face of the foundation wall, or into the lawn, with an open end, opening to the outside atmosphere. Fig. 3 shows the regular method of running a fresh air inlet.

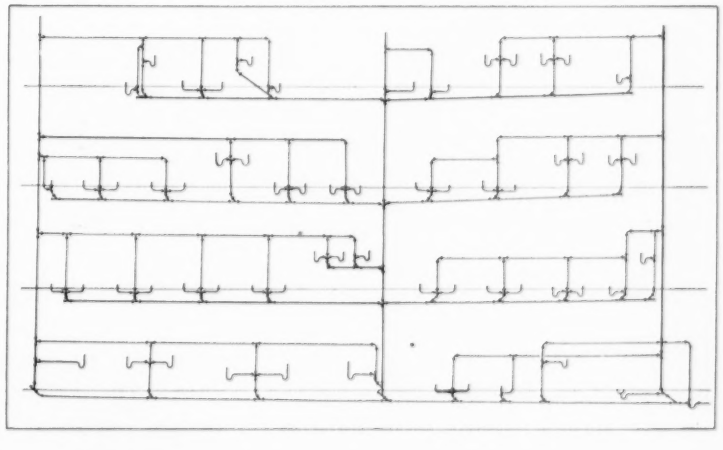
FRESH AIR INLETS

A. C. H. in submitting his drawing, has this to say about the main trap, "The main trap and fresh air inlet improve a system, but I don't approve of a fresh air inlet opening in front of a building. If it isn't practical to vent it back into a main vent stack, I would put in a main trap without a fresh air inlet." However, we have never seen a plumbing code that allowed the fresh air inlet to be connected into the vent system. As its name implies, the purpose of this pipe is to bring into the plumbing system a supply of fresh air, and when connected with the vent system, this purpose is defeated. Use of the main trap on the main house drain obstructs circulation of air through the drainage and vent piping, and the fresh air inlet is to provide such circulation when the main trap is used. It also has another purpose—to prevent air-lock between the seal of the main trap and a heavy volume of sewage flowing through the house drain to the sewer with consequent sluggish passage of the house sewage.

Fig. 4 shows no cleanouts on the main trap. Practically all plumbing codes call for two clean-







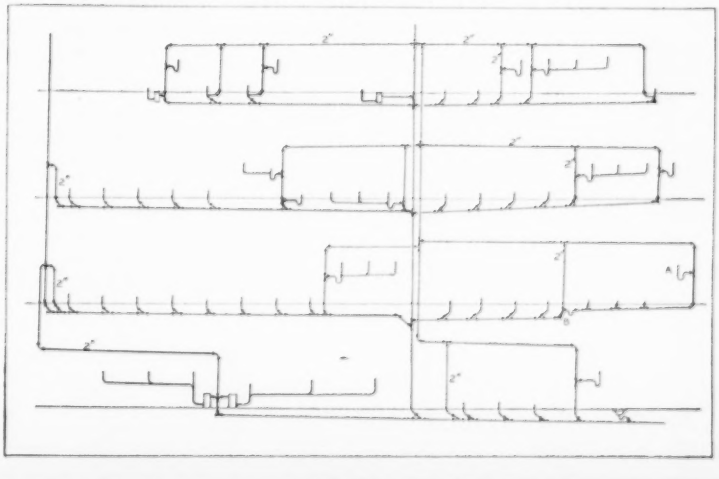


Fig. 2—In general, this drawing by E. T. J., New Jersey, is excellent. Chief criticism concerns seeming inconsistencies in the way in which the two top floor bathrooms are connected at points marked "A," "B" and "C"

Fig. 3—F. W. H., Michigan, connects two adjacent fixtures with under floor vent connections. This neglects a fundamental law that all vents rise above the overflow line of the fixture before connecting with any other vent

Fig. 4—"This drawing shows no cleanouts on the main trap. Practically all codes call for two cleanouts and in the removal of objects caught in traps, cleanouts, of course, are essential." Otherwise a good drawing

Fig. 5—By T. C., Ohio, shows that he favors the use of a single trap to serve three fixtures. Generally this practice is no longer followed; each fixture must have its own trap. Opinion is against this practice

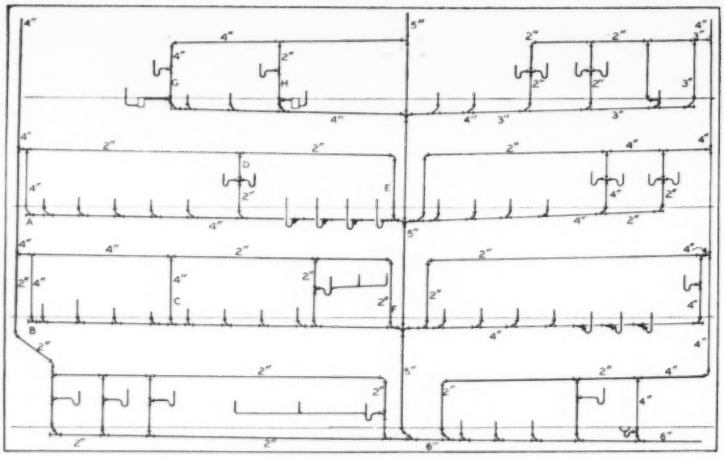


Fig. 6—The criticism which applied to the circuit and loop venting in Fig. 5 also applies here. Otherwise this covers the very points on which Fig. 5 erred

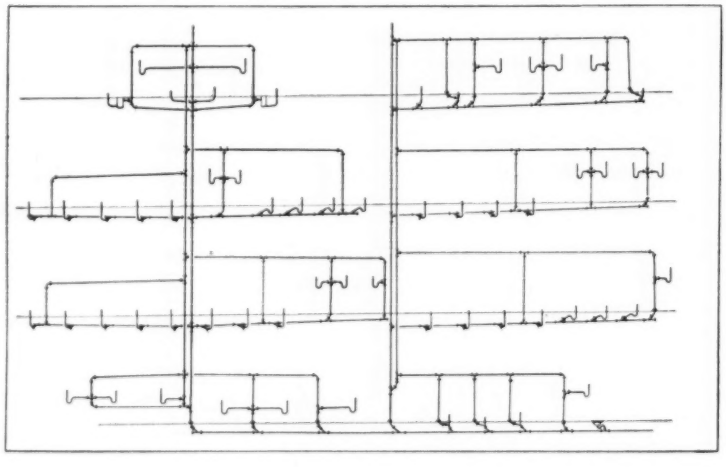


Fig. 7—This drawing incorporates the various features of circuit and loop venting. It is submitted for general discussion and criticism of these types of venting

outs, and in the removal of objects caught in these traps, cleanouts of course are essential. A. C. H.'s work might be considered in relation to the report of an English government-appointed commission for the investigation of the use of the main trap. This report found more evidence unfavorable to the practice than favorable and the use of this trap seems to be gradually decreasing.

USE OF SINGLE TRAPS

Fig. 5, by T. C., Ohio, shows that he favors the use of a single trap to serve three fixtures of almost any type. In his drawing this practice is followed in the case of three kitchen sinks, three sets of laundry tubs, three lavatories and three urinals. Evidently the plumbing code he is working under limits the practice to this number of fixtures, for in two instances a fourth fixture in a group has an individual trap. Most plumbing codes no longer allow this practice, which was very general years ago. Today, under modern plumbing practice, each fixture must have its own individual trap.

There are two arguments against the practice of using one trap for two or more fixtures. In the first place, when the trap becomes clogged, not only one fixture, but the entire group of fixtures is thrown out of use. Also, there is a long line of unprotected foul waste pipe extending from the trap to the outlet of the last fixture, which means that foul odor may enter the room through each fixture outlet.

The fixture at A is double trapped, which of course is wrong. Apparently the intention in Fig. 5 is to provide the several batteries of water closets with circuit or loop vents, but it will be observed that each rising vent is 2 in. and this is not large enough. These vents should be 4 in. and not only that, but the use of an auxiliary vent midway will give greater assurance of effective venting.

Fig. 6, by A. G., Louisiana, covers the very points on which Fig. 5 erred. About the only criticism we have to make of the circuit and loop venting in this layout is that the rising section of these vents at A and B is taken off the end of the run. It should preferably connect between the last two fixtures on the line, in order that the last fixture may wash away whatever scale enters through the vent connection. In each line at the right in this drawing, such precaution is not necessary, for other fixtures at the end of the line perform the necessary service.

It is generally considered good practice in circuit and loop venting, to use an auxiliary vent when six or more fixtures are served by such a vent. Therefore A. G.'s use of the relief vent at C is a good thing. Just above it, the unit vent D for two lavatories, performs the duties of an auxiliary vent. At E and F Fig. 6 shows the use of still another auxiliary vent, which adds a further safeguard.

Just as in Fig. 5, the Fig. 6 layout shows two cases of use of a single trap for three fixtures. The same arguments apply here, as in Fig. 5, against the practice. At G and H on the top floor, the bath traps are wet vented by the lavatories. In the case of G, the riser is 4 in. and in the case of H, the riser is 2 in. Use of wet vents is a very much disputed practice, but when such large sizes of pipe are used, it seems a safe practice. It should be pointed out though that the reason the 4 in. riser is used at G, is that it is the riser for a loop vent.

Out of this problem seems to have developed the question of use of circuit and loop vents. In this connection, A. C. H., in submitting his drawing, Fig. 4, makes this statement, "I know from observation that circuit vents do not vent a line of closet bowls as effectively as individual vents." Often failure of this method of venting may be due to faulty installation. We know for instance, of the failure of circuit and loop venting on the plumbing system for a very large athletic stadium. This became a successful installation when certain corrective measures were applied.

In Fig. 7 there is shown a drawing incorporating the various features of circuit and loop venting. In the first place, we thought it wise to use two stacks instead of one, thereby making the batteries of water closets at the left shorter.

It will be observed that except for the battery of water closets in the basement, we show the water closet drainage fitting laid on its side, with waste from each fixture entering the main line horizontally rather than at an angle of 45 degrees as in Figs. 5 and 6. Here may be the cause of failure of many circuit and loop vent jobs.

It should be borne in mind that in this form of venting the main horizontal waste or soil line does double duty; it serves not only as a waste pipe, but also as a vent pipe. In other words, this horizontal line, while carrying sewage in the bottom part of the pipe, also carries air for venting the fixtures in its upper part. It is clear then, that every means should be taken to insure free passage of air through this horizontal line, if we expect an effective job of venting to be done.

CORRECT DRAINAGE FITTINGS

When the drainage fittings are laid with the Y branch looking upward, as in Figs. 5 and 6, every time the flush from a fixture enters the main line, a curtain of water forms for the moment across the entrance of the branch into the main line. For the time of the duration of the flush this curtain obstructs the flow of air through the upper part of the pipe. At a time when the fixtures are much in use, this action may so obstruct the flow of air as to practically overcome its use for venting the fixtures.

On the other hand, when the flush from a water closet, or from a number of water closets, enters the horizontal main horizontally, as seen in Fig. 7, no obstructive curtain is formed at any single branch opening and there will be free space for the air to travel in the upper part of the pipe.

PROVIDING FOR PEAK LOAD

It should be made clear however, that even with drainage fittings laid on their sides, as in Fig. 7, success will not be attained unless the main drainage line is of sufficient diameter to provide space for a peak load and also to provide space for free passage of air.

In Fig. 7 it will be observed that the line of water closets in the basement is not circuit-vented or loop-vented, but each fixture is individually vented. The reason for this is that these fixtures are on the main house drain. Past these fixtures every bit of sewage in the entire building must pass. Under such circumstances it is considered the best practice not to depend upon anything but individual vents. We call attention to the use, in Fig. 6, of an auxiliary vent on the longer lines of fixtures as this is a much better and safer practice to follow.

As was mentioned previously, since there are no floor plans presented with these drawings; that is, only the elevations have been shown, there is no way of knowing the exact location of the various fixtures and for that reason a varying number of stacks may be shown. In Fig. 7 it was assumed that the stacks as indicated on the drawing would be sufficient and the fixtures would be so located that they could be served by these stacks. All individual codes have points from which they will deviate from other codes and this, in itself adds interest to these problems. Fig. 6 was prepared to illustrate various features of loop and circuit venting as it is generally practiced.

The next drawing problem to be submitted for criticism and suggestion is shown in Fig. 1. It will be the plumbing installation at the left for the main building, and that at the right is a small two story building in which the heating equipment is housed, also the garage with its toilet room, and living apartments on the floor above, as are noted on the drawing.

CONDENSING TANKS

Show complete drainage and venting for the garage and for the condensing tank used in connection with the heating system, also plumbing for the bath and toilet rooms. As a part of the problem decide how you want to dispose of the drainage of the house at the rear, whether into the house drain of the main building or by some other means. Show this part of the work done as it would have to be done under your local code. It is often well to send in written comment concerning such work as this. In the main building correct all the errors that are shown, and use the three stacks passing through the roof.

These stacks may be located as they now are. A part of the correction consists of sizing the various waste and vent pipes correctly. Connections for the condensing tank may be new to some and should provide an interesting problem for solution as this type of work has not been presented before.

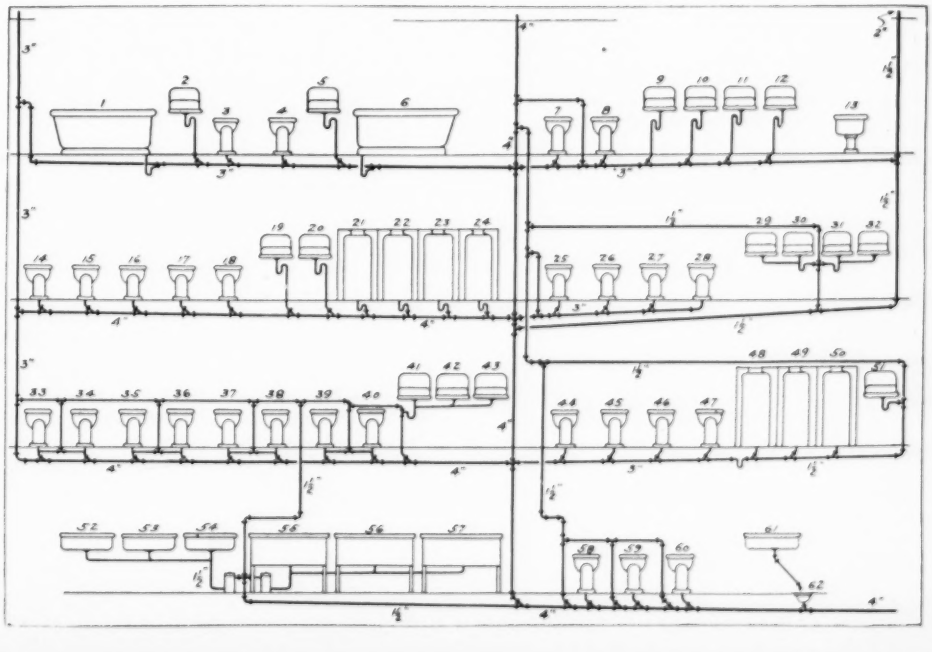


Fig. 8—Here is the incorrect drawing which appeared in the June issue of DOMESTIC ENGINEERING. Various reader's solutions are discussed on this and preceding pages

Supplementary—*Information*

Here is supplementary information on the reference data in the sheets on the next page

THE series of data sheets entitled "Heating Reference Data," the next four tables of which appear on the next page, was begun in August, 1936. Continued and increasing reader interest and requests have led to the inclusion of additional material of this type in succeeding issues.

Beginning with this issue, and continuing until its completion, explanatory comments on the tables will supplement the tables themselves. This explanatory copy will endeavor to make more explicit the condensed data contained in the charts, and will contain supplementary information of value to the one using the data in the charts in his everyday work.

It is with that purpose in mind all of this material has been developed, with the thought of making the heating reference data charts of most practical value.

Sheet No. 49

Radiator Roughing-In

This sheet introduces the subject of radiator roughing-in. It contains general information on the subject. Roughing-in dimensions include not only the distance between the supply and return stubs to suit the length of the radiator and valves, but also the distance from the wall that these stubs are to be located. The distance out from the wall may be calculated by taking the width of the radiator sections, dividing it by 2, and adding the distance that the radiator is to be away from the wall. In later tables only the distance between the return and supply stubs is noted. This figure is the more difficult to calculate.

Sheet No. 50

Standard Dimensions

Certain standard dimensions have been adopted and are followed in the manufacture of radiator valves, radiator traps and union ells. This makes possible determining the roughing-in between the supply and return for a radiator of a given number of sections when the sizes of the supply and return valves or ells are known. It is important to note that on steam radiators, the angle valve and modulation valve have different dimensions, so that the roughing-in dimensions will be either for two angle valves or for a modulation valve and a thermostatic trap.

Sheet No. 51

Radiator Roughing-In

This chart gives roughing-in dimensions for radiators in which the sections are 1½ in. long. This dimension will suit radiators for hot water and for two-pipe steam, provided the return valve is the same size as the supply valve, the same as occurs with hot water. The first column represents the number of sections; the second, the resulting length of the radiator; and the last six, the roughing-in dimensions, in inches, for the size of connection noted at the top of the column.

Sheet No. 52

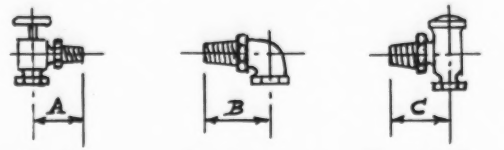
Radiator Roughing-In

This tabulation also covers radiators with sections 1½ in. long, but is for vacuum and vapor type installations in which thermostatic traps are used. Similar to the previous sheet, the first column represents the number of sections in the radiator; the second, the resulting length of the radiator; and the last six, the roughing-in dimensions, in inches, for radiator with ½ in. traps and with modulated supply valves of the size shown at the top of the column. Both this and the previous chart make allowance for a ½ in. dimension at each end of the radiator, which provides for the bushings. If no bushings are used, 1 in. should be subtracted from the dimension given. If one bushing is used, ½ in. should be subtracted from the given dimension.

50—

Standard Dimensions

Radiator Valves, Ells, Traps, etc.



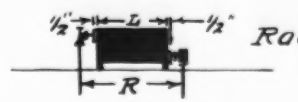
Radiator Valve — Union Elbow — Radiator Trap

Size	½"	¾"	1"	1¼"	1½"	2"	Tol.
***Angle Valve "A".	2¼"	2¾"	3"	3½"	3¾"	4¼"	±⅛"
Thd. Insert'n	5/16	5/16	11/16	11/16	11/16	¾	
Made Up Lgth.....	1 11/16	2 3/16	2 5/16	2 13/16	3 1/16	3½	
**Mod. Valve "A"...	2¾	2¾	3	3½	3¾	4¼	±⅛
Thd. Insert'n	5/16	5/16	11/16	11/16	11/16	¾	
Made Up Lgth.....	2 3/16	2 3/16	2 5/16	2 13/16	3 1/16	3½	
*Union Ell "B".....	2¼	2¾	3	3½	3¾	4¼	±⅛
Thd. Insert'n	5/16	5/16	11/16	11/16	11/16	¾	
Made Up Lgth.....	1 11/16	2 3/16	2 5/16	2 13/16	3 1/16	3½	
**Rad. Trap "C"....	3¼	...	...	...	...	...	
Thd. Insert'n	5/16	...	...	...	...	...	
Made Up Lgth.....	2 11/16	...	...	...	...	...	

*For Water. **For Steam. ***For Both.

51—

Radiator Roughing-in



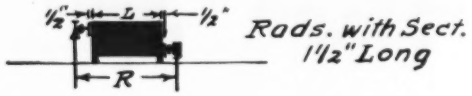
Rads. with Sect. 1½" Long

Rads. with Sect. 1½" Long.

No. of Sect.	Lgth. "L"	Grav. St. or H. W. Valve and Valve or H. W. Valve and Union Ell = "R" ½"	¾"	1"	1¼"	1½"	2"
2	3"	7⅜"	8⅜"	8⅝"	9⅝"	10⅛"	11"
3	4½	8⅞	9⅞	10⅛	11⅛	11⅝	12½
4	6	10⅜	11⅜	11⅝	12⅝	13⅛	14
5	7½	11⅞	12⅞	13⅛	14⅛	14⅝	15½
6	9	13⅜	14⅜	14⅝	15⅝	16⅛	17
7	10½	14⅞	15⅞	16⅛	17⅛	17⅝	18½
8	12	16⅜	17⅜	17⅝	18⅝	19⅛	20
9	13½	17⅞	18⅞	19⅛	20⅛	20⅝	21½
10	15	19⅜	20⅜	20⅝	21⅝	22⅛	23
11	16½	20⅞	21⅞	22⅛	23⅛	23⅝	24½
12	18	22⅜	23⅜	23⅝	24⅝	25⅛	26
13	19½	23⅞	24⅞	25⅛	26⅛	26⅝	27½
14	21	25⅜	26⅜	26⅝	27⅝	28⅛	29
15	22½	26⅞	27⅞	28⅛	29⅛	29⅝	30½
16	24	28⅜	29⅜	29⅝	30⅝	31⅛	32
17	25½	29⅞	30⅞	31⅛	32⅛	32⅝	33½
18	27	31⅜	32⅜	32⅝	33⅝	34⅛	35
19	28½	32⅞	33⅞	34⅛	35⅛	35⅝	36½
20	30	34⅜	35⅜	35⅝	36⅝	37⅛	38

These pages containing reference tables are arranged in this form so that they will be convenient to handle. They combine information found in standard text books with that obtained in practical work. The series will be added to each month until completed

Radiator Roughing-in



Rads. with Sect. 1½" Long.

No. of Sect.	Lgth. "L"	Vac. Vapor or Modulated St. Grad. Value and Therm. Trap ½"	¾"	1"	1¼"	1½"	2"
2	3"	8⅞"	8⅞"	9"	9½"	9¾"	10 3/16"
3	4½	10⅜	10⅜	10½	11	11¼	11 11/16
4	6	11⅞	11⅞	12	12½	12¾	13 3/16
5	7½	13⅜	13⅜	13½	14	14¼	14 11/16
6	9	14⅞	14⅞	15	15½	15¾	16 3/16
7	10½	16⅜	16⅜	16½	17	17¼	17 11/16
8	12	17⅞	17⅞	18	18½	18¾	19 3/16
9	13½	19⅜	19⅜	19½	20	20¼	20 11/16
10	15	20⅞	20⅞	21	21½	21¾	22 3/16
11	16½	22⅜	22⅜	22½	23	23¼	23 11/16
12	18	23⅞	23⅞	24	24½	24¾	25 3/16
13	19½	25⅜	25⅜	25½	26	26¼	26 11/16
14	21	26⅞	26⅞	27	27½	27¾	28 3/16
15	22½	28⅜	28⅜	28½	29	29¼	29 11/16
16	24	29⅞	29⅞	30	30½	30¾	31 3/16
17	25½	31⅜	31⅜	31½	32	32¼	32 11/16
18	27	32⅞	32⅞	33	33½	33¾	34 3/16
19	28½	34⅜	34⅜	34½	35	35¼	35 11/16
20	30	35⅞	35⅞	36	36½	36¾	37 3/16

Radiator Roughing-in

Standard dimensions for radiator valves, traps and union elbows are given on Sheet 50 and the distances which the thread will screw into the fitting are given in Standard Tables.

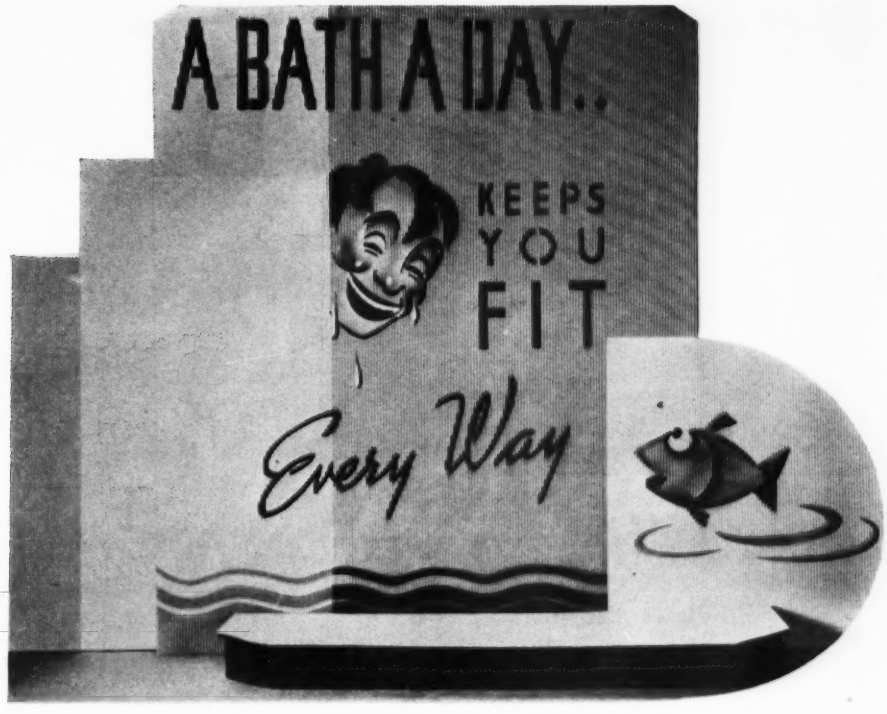
A bushing in a radiator tapping adds ½ in. to the length of the radiator or 1 in. if two bushings are used. Radiator sections commonly are 1½ in., 2½ in. or 3 in. in length. Consequently, the overall length of a radiator is

Number of sections × length of section + ½ in. for each Bushing.

In the roughing-in given on Sheets 51 to 56 inc., the radiators have been assumed as bushed on both ends; if only one bushing is used deduct ½ in. from roughing-in given in tables; if no bushings are used deduct 1 in.

For radiators of over 20 sections add the length of all sections in excess of 20 to the roughing-in for 20 sections.

Published by Domestic Engineering.



The attractive and many-colored corrugated board window display shown here was developed to tie in with the tested bath a day merchandising program

Bath-A-Day—*Campaign* . . .

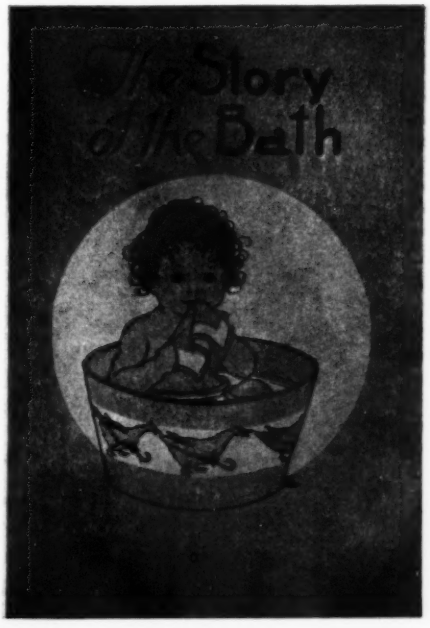
Continuing interest brings new uses for story

"A BATH A Day Keeps You Fit Every Way." That slogan has sold a good many plumbing fixtures in the years since it first was adopted. The slogan itself and the all-industry promotional program it represents recently have been given added impetus and additional point by the striking window display which uses the slogan as its caption.

This window display, which is reproduced at the top of this page, has been given colorful, up to date treatment that makes both it and its message as modern as tomorrow's newspaper. The "Bath-A-Day" window display has proved to be one of the most popular in the series of planned window displays announced by DOMESTIC ENGINEERING recently. One of the reasons for the popularity of this window display is the demonstrated pulling power of the slogan it carries.

Many contractor-dealers in all sections of the country still consider the "Bath-A-Day" slogan their number one piece of sales promotion ammunition. Add to this the fact that the summer season adds even greater point and emphasis to the slogan, and it will be seen that the display has potent possibilities.

(Continued on Page 164)



"The Story of the Bath," in booklet form illustrated at the left, is ever-new. It serves as an excellent tie-in with the window display

Chart 1—In the above chart, labor, accounting for 21.23 per cent of the value of work performed, includes only labor at the site of construction. The remainder of the payroll accounted for 6.27 per cent of the value of work performed. These figures, of course, include no compensation for proprietors and firm members of unincorporated businesses

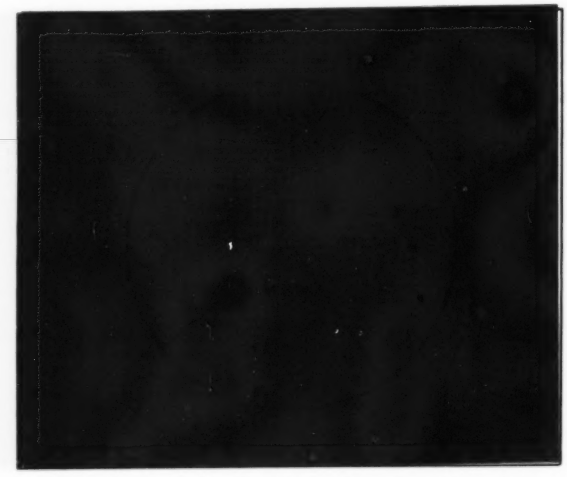


Chart 2—The peak for plumbing and heating contractors was reached in October when employment was 116.7 per cent of the average month. February, on the other hand, was the slowest month, with employment 86.7 per cent of normal. General contractors reached a peak of 126.8 per cent in August, while in February, their slowest month, employment was only 62.8 per cent of the average month's figure

Breakdown—

Material compiled sales dollar, employ- al trends in employ-

THIS month's article on the 1935 Census will endeavor to interpret these statistics as they apply to the business of the plumbing and heating contractor or retailer.

From this Census material it has been possible to determine the percentages of the plumbing and heating sales dollar that go for labor, material, for overhead and profit, the number of mechanics in the industry, the trend with chains, the seasonal trend of employment and, in short, practically every important point in connection with the operation of a plumbing and heating retail business.

According to the 1935 Census there were 23,856 plumbing and heating contractors and 5,025 plumbing and heating equipment dealers—or a total of 28,881 retail outlets. As was pointed out last month, these figures do not represent the total number of plumbing and heating retail outlets in the United States because of the limitations that are necessarily involved in a Census of this sort.

As is shown in Table I, these 23,856 contractors reported completed work valued at $284,679,000 during 1935, or an average of $11,933 per firm. According to the 13,741 contractors reporting in Table III, the cost of materials installed accounted for 48 per cent of the value of work performed, the pay roll for 27.5 per cent, and overhead, profit, etc., 24.5 per cent. Applying the 48 per cent to the $11,933, we find that the average contractor spent $5,728 for materials during 1935.

TABLE I
UNITED STATES SUMMARY: 1935
PLUMBING AND HEATING CONTRACTORS—WORK PERFORMED, PERSONNEL AND PAY ROLL

	Total for All Reporting Establishments		Establishments Reporting Work Performed, Personnel, and Pay Roll					Establishments Reporting Work Performed Only	
	Number of Establishments	Value of Work Performed (Add 000)	Number of Establishments	Value of Work Performed (Add 000)	Active Proprietors and Firm Members	Employees, Average for Year	Pay Roll[2] (Add 000)	Number of Establishments	Value of Work Performed (Add 000)
Heating and Plumbing Group	23,856	284,679	22,947	269,031	23,238	58,249	72,362	909	15,648
Heating and Piping	1,809	58,625	1,607	52,423	1,262	10,181	15,351	202	6,202
Heating and Piping with Sheet Metal	1,790	27,144	1,733	26,284	1,801	6,513	8,036	57	860
Heating, Piping, Plumbing	8,441	111,803	8,181	107,413	8,299	23,228	28,288	260	4,390
Heating, Piping, Plumbing with Sheet Metal	1,339	24,200	1,329	24,020	1,373	5,754	7,027	10	180
Plumbing	9,984	60,017	9,612	56,162	9,968	11,960	13,042	372	3,855
Plumbing with Sheet Metal	493	2,890	485	2,729	535	613	618	8	161

[2]Includes no compensation for proprietors and firm members of unincorporated businesses.

Basic Figures On Retail Business

determines distribution of ment in industry and season- ment and merchandising

In another section of the Census it is shown that 2,432 identical establishments showed 49.4 per cent of their work performed as representing cost of materials in 1935

TABLE II
PLUMBING AND HEATING RETAIL STORES
(Sales, Pay Roll and Operating Expense Expressed in Thousands of Dollars

	1935	1933	1929
Number of stores	5,025	11,307	12,709
Sales (add 000)	$89,477	$123,128	$334,277
Active proprietors and firm members	4,315	11,433	†
Employees (full-time and part-time) average for year	16,802	31,078	†
Pay Roll* (add 000)	....	....	....
Total	$20,065	$28,716	$80,324
Full-time	$18,061	$21,395	†
Part-time	$ 2,004	$ 7,321	†
Operating Expense (including Pay Roll)* (add 000)	$30,986	$49,629	†

*Includes no compensation for proprietors and firm members of unincorporated businesses.
†Figures not available.

as compared with 53.1 per cent in 1929. Also, that their pay rolls were 31.4 per cent in 1935 as compared with 32.5 per cent in 1929. Thus it is seen that with these contractors, overhead and profit represented only 14.4 per cent of the value of work performed in 1929 as compared with 19.2 per cent in 1935. This can be traced largely to the decreased volume which automatically would raise the portion that must be charged to overhead.

Further data on employment and pay rolls are contained in census figures. These figures have been based on 8,291 plumbing and heating contracting firms, show that 5.2 per cent of the employes are corporation officers receiving 9.2 per cent of pay rolls—1.4 per cent are administrative and technical employes receiving 2.3 per cent of the pay rolls and 10.8 per cent are other salaried employes receiving 9.1 per cent of the pay rolls. 79.8 per cent are wage earners at the site of construction receiving 77.2 per cent of pay rolls and 2.8 per cent are other wage earners receiving 2.1 per cent of pay rolls. Applying the 77.2 per cent to the 27.5 per cent, which is the total percentage of work performed that makes up the pay roll, we find that 21.23 per cent of the average value of work performed represents pay rolls at the site of construction. Adding to this figure the 48 per cent cost of materials, we find that 69.23 per cent of the value of work performed represents labor and cost of materials and that 30.77 per cent of the value of work performed represents overhead, profit, etc. These figures are shown graphically in Chart 1.

For the 5,025 plumbing and heating equipment dealers reporting to the Census, sales were $89,477,000 or an average of $17,806.00 per store. Since this average is more than 50 per cent above the average for the contractors, the value of merchandising is clearly indicated. In this connection it should be kept in mind that for the purposes of the Census, a dealer is any plumbing and heating retail outlet that is doing more than 50 per cent of its business over the counter whereas the contractor is doing more than 50 per cent of his business under contract.

Although d.t.u.'s are included in this dealer classifica-

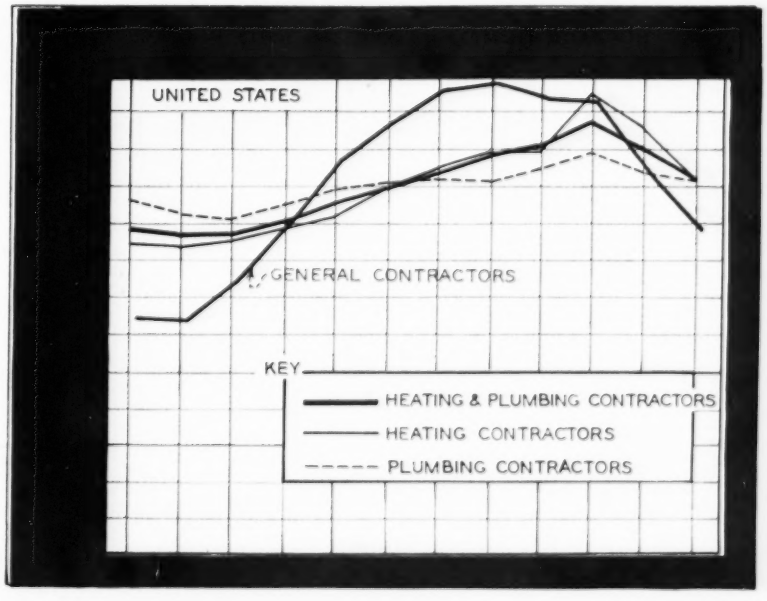


Chart 3—This chart shows, in black, employment data on the heating contractor, the plumbing contractor and the plumbing and heating contractor; the general contractor is indicated in color

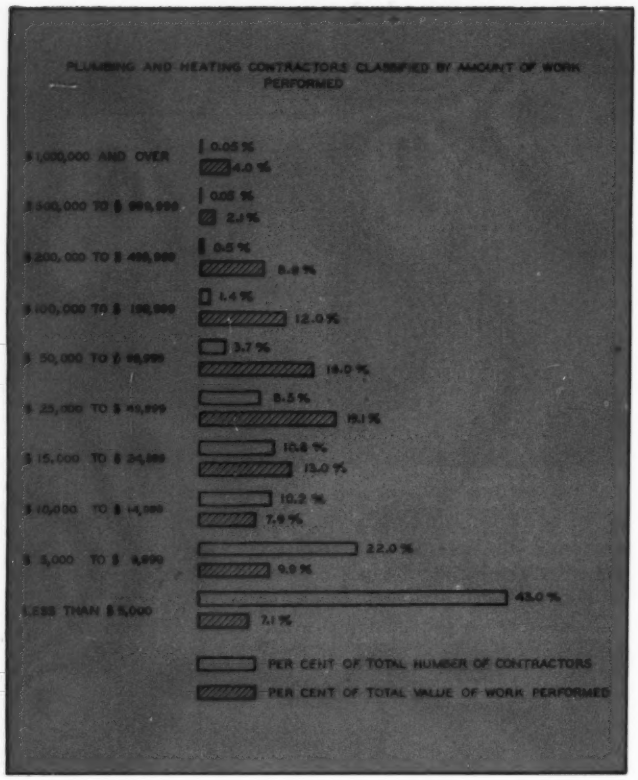


Chart 4—By totaling the first eight classifications we find that 34 per cent of the contractors do 83 per cent of the business

tion, the major portion would be firms that generally are classed as contractors in the industry. Of particular interest in the Census figures on these plumbing and heating equipment dealers is the fact that 41.4 per cent of their sales were for cash; 35.8 per cent, open account sales; and 22.8 per cent, installment sales. Thus the trend toward installment selling in the plumbing and heating industry is shown as already well under way in 1935. These figures are shown graphically in Chart 2.

A great deal of employment data has been included in the Census giving a very complete picture of wage and employment conditions as they exist among plumbing and heating contractors and dealers. In the 22,947 plumbing and heating contracting firms reporting personnel and pay roll, there were 58,249 employes, or an average of 2½ per firm. As was stated above, 79.8 per cent of the contractors' employes are at the site of construction, hence applying this figure to the 2½ we find that the average contractor has two men employed at the site of construction. Thus there were in 1935

TABLE IV
UNITED STATES SUMMARY: 1935
REPORTED OPERATING EXPENSE OF RETAIL STORES

	Heating and Plumbing Equipment Dealers	All Types of Retail Stores U. S. Total
Number of Stores	5,025	1,653,961
Sales (add 000)	89.477	33,161,276
Total Payroll Amount (add 000)	20,065	3,623,289
Percent to Sales	22.4	10.9
Total Reported Expenses (including payroll*) (add 000)	30,986	7,591,912
Total Reported Operating Expense* per cent to sales:		
1935	34.6	22.9
1933	40.3	26.0
1929	33.8	21.1
STORES REPORTING RENTAL OF LEASED PREMISES		
Number of Stores	2,544	724,739
Sales (add 000)	54,808	17,648,964
Rent Paid (included in total reported expenses) (add 000)	1,285	689,899
Ratio of rent to sales:		
1935	2.3	3.9
1929	2.3	4.2
Ratio of rent paid to total reported operating expenses	6.7	16.5
Total reported operating expense* Amount (add 000)	19,209	4,189,694
Per cent to sales	35.0	23.7

*Does not include compensation for services of proprietor-owners actively engaged in the operation of their stores.

TABLE III
CONSTRUCTION INDUSTRY: 1935—UNITED STATES SUMMARY
ESTABLISHMENTS, WORK PERFORMED, PERSONNEL, PAY ROLL, AND COST OF MATERIAL, BY KIND OF BUSINESS

Kind of Business	Number of Establishments	Value of Work Performed (Add 000)	Active Proprietors and Firm Members	Employees Average for Year	Pay Roll[1] (Add 000)	Cost of Material Installed (Add 000)	Per Cent of Total Work Performed: Pay Roll	Per Cent of Total Work Performed: Material
UNITED STATES	46,429	$1,330,835	44,531	379,067	$436,802	$559,441	32.8	42.0
Heating and plumbing group	13,741	214,642	13,525	45,752	59,046	103,005	27.5	48.0
Heating and piping	1,194	46,811	861	8,960	13,735	22,840	29.3	48.8
Heating and piping with sheet metal	1,204	22,276	1,209	5,496	6,976	10,055	31.3	45.1
Heating, piping, plumbing	5,568	87,547	5,531	18,642	23,317	43,539	26.6	49.7
Heating, piping, plumbing with sheet metal	1,124	22,051	1,139	5,224	6,460	10,677	29.3	48.4
Plumbing	4,443	34,349	4,557	7,066	8,178	15,231	23.8	44.3
Plumbing with sheet metal	208	1,608	228	364	380	663	23.6	41.2

[1]Includes no compensation for proprietors and firm members of unincorporated businesses.

TABLE V
HEATING AND PLUMBING GROUP: 1935
AVERAGE HOURLY EARNINGS FOR WAGE EARNERS AT THE SITE, FOR GEOGRAPHIC DIVISIONS
(Amounts Are Shown in Cents)

	New Eng.	Mid. Atl.	E.N. Cent.	W.N. Cent.	S. Atl.	E.S. Cent.	W.S. Cent.	Mt.	Pacific
Heating and Plumbing Group	83.4	85.3	85.4	80.1	69.6	57.6	68.9	79.6	85.0
Heating and Piping	89.4	93.3	104.2	90.4	79.5	*	*	*	72.6
Heating and Piping with Sheet Metal	*	82.1	69.5	68.1	61.1	51.3	60.3	*	75.8
Heating, Piping, Plumbing	83.3	85.6	85.7	84.1	71.4	58.3	71.4	81.5	90.7
Heating, Piping, Plumbing with Sheet Metal	76.8	77.4	79.4	63.6	55.1	*	*	*	84.4
Plumbing	*	85.8	88.8	*	67.7	*	71.5	*	81.9
Plumbing with Sheet Metal	88.0	*	*	84.7	*	58.9	*	*	*

*No figures available.

something between 80,000 and 100,000 journeymen and helpers employed in the plumbing and heating industry. This is assuming that the total number of contractors is somewhere between 40,000 and 50,000.

Table V shows the variation of the hourly wages in the plumbing and heating industry in various sections of the country. As might be expected, the highly industrialized sections show a higher hourly wage rate than the agricultural sections. The Pacific States, however, are an exception to this general rule, as the hourly wage rate here is about the same as in the industrial sections. Table VI shows further how the hourly wage rate is higher in the larger cities than in the smaller towns and rural areas. These figures combine both the journeyman and the helper.

The Department of Labor has just issued a pamphlet entitled "Wage Earners and Hours of Labor in the Building Trade" which gives rather complete data on wage rates for plumbers, steamfitters and their helpers throughout the United States. This study shows that

TABLE VI
HEATING AND PLUMBING GROUP: 1935
AVERAGE EARNINGS PER HOUR FOR WAGE EARNERS AT THE SITE OF CONSTRUCTION

	Number of establishments	Employees (average for the year)	Hourly earnings (cents)
California	292	1,256	85.5
Los Angeles	58	319	87.0
San Francisco	43	229	87.9
Remainder of State	191	708	84.0
New York	722	3,667	89.7
Buffalo	29	172	86.6
New York City	447	2,379	93.2
Remainder of State	246	1,116	82.6
Wisconsin	196	726	73.3
Milwaukee	92	356	81.5
Suburbs of Milwaukee	8*	19*	62.2*
Other cities of 10,000 or more inhabitants	71	270	67.8
Remainder of State	25	81	57.7

*No significance can be attached to these figures because of the small number of reports on which they are based.

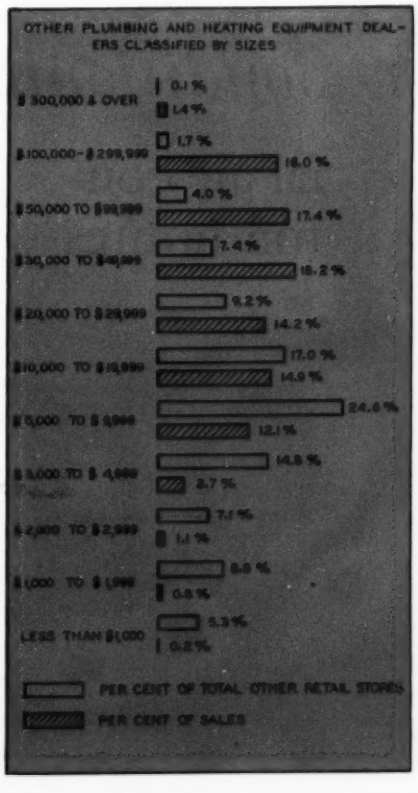


Chart 5—From the first six groups we find that 83.2 per cent of the chain stores and mail order houses do 96.98 per cent of the business

the average union plumber receives $1.284 per hour and the non-union plumber $.954 per hour. The union helper receives $.699 per hour and the non-union helper $.482 per hour. Union steamfitters receive $1.302 per hour, non-union $.95 per hour. Union steamfitter helpers receive $.786 per hour and non-union helpers $.548 per hour.

In breaking down the figures on the plumbing and heating equipment dealer, the Census shows the percentage of total sales and total operating expenses that goes for rent. This data is shown in Table IV. In both 1935 and 1929 the plumbing and heating equipment dealer spent 2.3 per cent of his total sales for rent. This compares with 3.9 per cent in 1935 and 4.2 per cent in 1929 for all retail stores. The plumbing and heating

(Continued on Page 154)

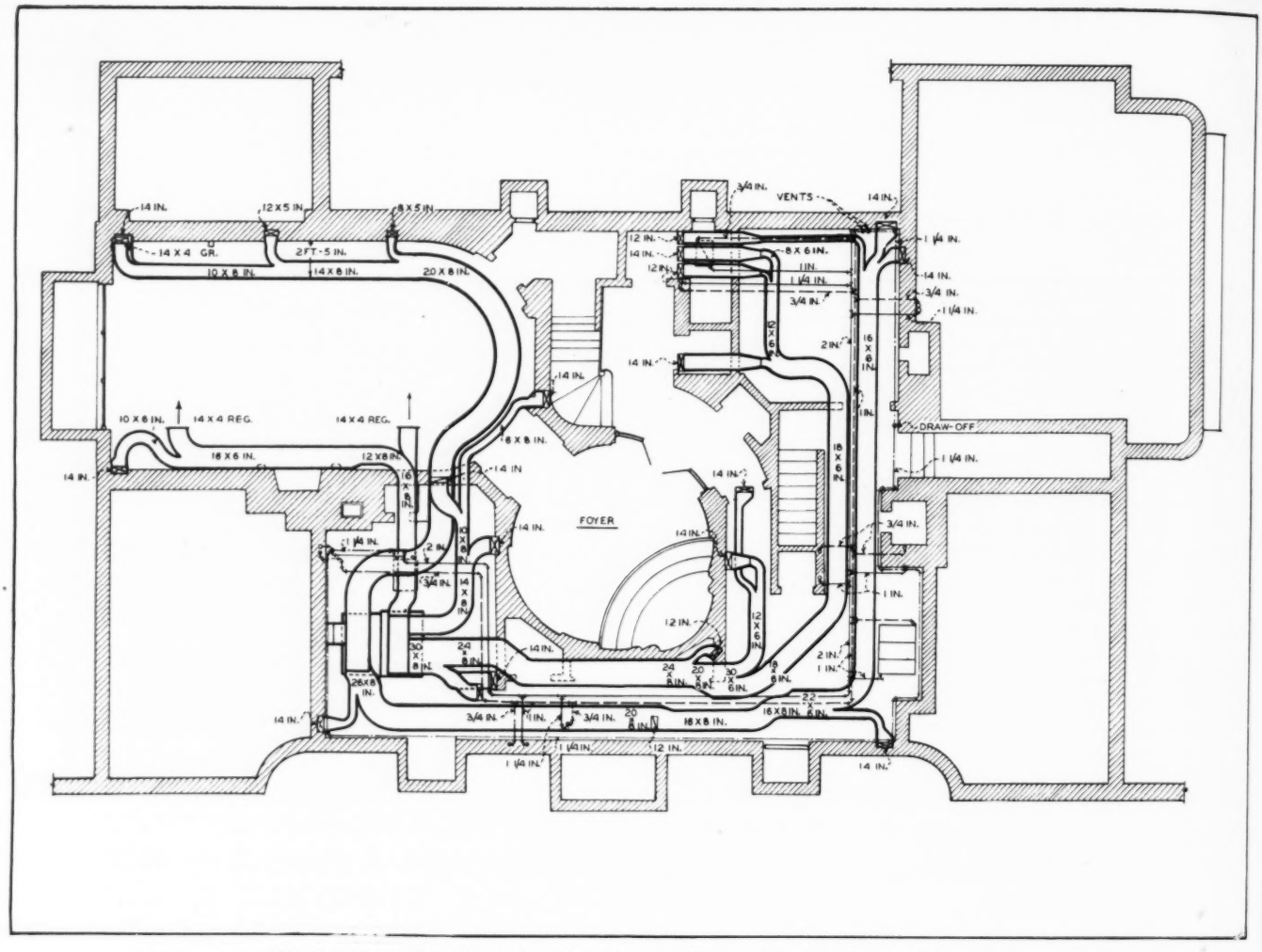


Fig. 1—Air conditioning with radiator heat is illustrated in this basement floor plan

Of Course—*Air Conditioning*

Public exposed to commercial air conditioning now expects it for homes

THE model house located in Fox Meadow, Scarsdale, N. Y., and which was opened for public inspection in July, is worthy of more than a passing notice. Most decidedly it is not "just another model house" but—on the contrary—is more or less a pretentious residence. Visitors are averaging 2,500 per week and come from such far away places as Utah, Arizona and even England. The house may be described, perhaps, as an unusual development of a high class but not unduly expensive type of residence and evoked the comment from Thomas G. Grace, State Director of the Federal Housing Administration, that it includes, "everything the home-seeker could want, not only in utility, but in comfort, safety, beauty and maintenance."

Fig. 2—This group of photographs shows some of the characteristics of the model home which had to be taken into consideration in designing the heating and air conditioning systems. Note the glass block wall construction. The air conditioned living room is shown in the view at the left

There is air conditioning installed. So many of the newer types of homes are installing or providing this adjunct that it has reached the point where it is expected as a matter of course. It is interesting to note just how air conditioning was handled in this home of careful thought and planning. In the first place, there is a dual system, or, rather, two separate systems employed. Each system is entirely independent of the other and has its own separate boiler. Both boilers are gas-fired and are specially constructed for the use of gas fuel. In general, direct radiation is used for heating the servants' and service quarters. One gas-fired boiler is connected to this system and is operated by its own thermostat located in this portion of the building. The master's portion of the house is heated by air supplied from an air conditioning unit in the basement, the heat necessary for the air being secured from the other gas-fired boiler installed for this particular service and controlled from a thermostat in the master's portion of the house.

(Continued on Page 159)

6,000,000 Advertising Messages Boost Sales for Silent Glow Dealers

The Silent Glow Oil Burner Corporation has launched the largest campaign ever run on their new Air-Seel Burner.

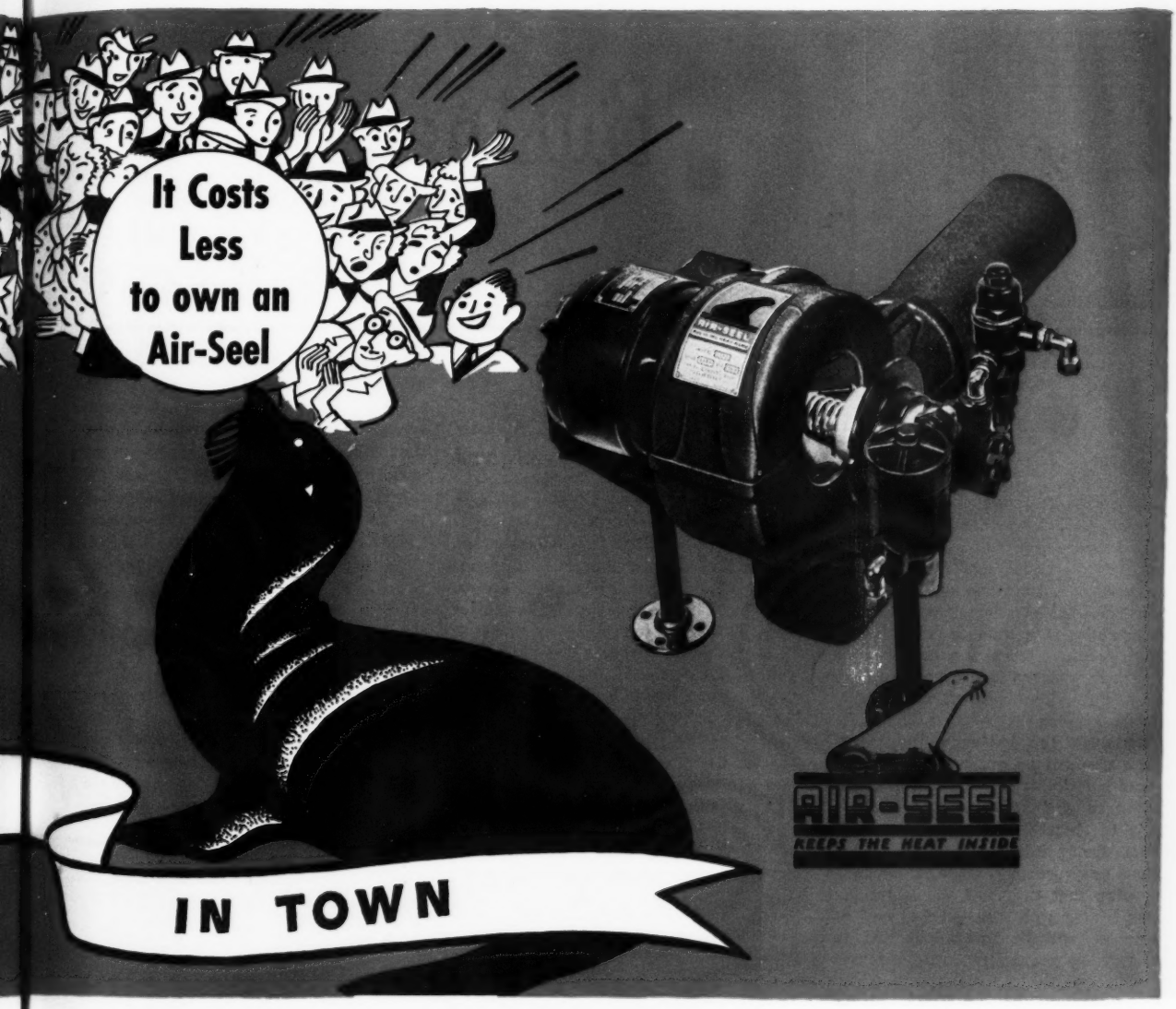
Full page ads are appearing in the *American Home Magazine* telling millions of home-owners from coast to coast how to save 20% to 35% on fuel costs by buying the burner that closes the door to the heating plant.

Demand for Air-Seel Already Exceeds Factory Expectations

Dealers sales are mounting everywhere. Every week they are discovering it is easier to convince prospects of Air-Seel advantages than any other burner they have handled. Even the most inexperienced salesmen can convince the customer that this is actually *the lowest cost burner to own.*

SILENT GLOW OIL BURNER

The new Silent Glow advertising is speeding up the finding of prospects and the closing of sales. Every ad carries a coupon and all inquiries are mailed immediately to the nearest Silent Glow dealer.



The Only Burner That Closes the Door —And Here's How to Prove It

You don't just *tell* a prospect that an Air-Seel closes the door to his heating system. You can actually *prove* it.

Ask him to hold a lighted candle at the fan opening of an ordinary burner and see how the flame is sucked in when the burner shuts off—clear proof that cold air rushes in and chills the 1700 degree interior of the heating system.

Then make the same test with a Silent Glow Air-Seel. The fact that the candle flame is not sucked in proves that the exclusive Silent Glow Progrotor has formed a closed door. Heat is sealed in. Cold air is locked out.

Then when you tell a prospect that an Air-Seel reduces fuel costs 20% to 35%—you have given him a reason-why that he can understand.

Now is the time to reap big profits on oil burners by featuring the new Silent Glow Air-Seel. Act before it is too late. Franchises are limited and are being closed rapidly. Write today for complete story on the Silent Glow franchise.

A Complete Line—Complete Cooperation

Remember these additional facts about the Silent Glow franchise. The Silent Glow line is complete. There is a size and model for every oil-burning job. A Silent Glow factory representative is never more than a few hours away. You get expert sales and technical cooperation 24 hours a day, 365 days in the year.

If You Want to Stage the Greatest Show in Town Mail this Coupon at once

SILENT GLOW OIL BURNER CORP.
(DE-8) Hartford, Conn.

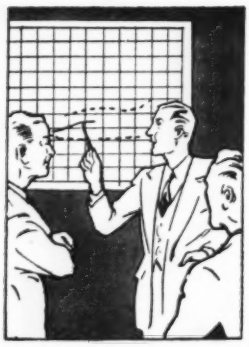
Sure I want my share of profits and I want them now. Rush me full facts on the Silent Glow franchise.

Firm Name.....

Street.....

City..... State.....

By.....



Business

Southeastern Section Leads . . . Prices Fairly Well Stabilized . . .

Gain Over 25 Per Cent

• *Increase of better than one-fourth over the first half of last year—Automatic heating equipment and plumbing brass lead*

In spite of unsettled business conditions that existed in the last quarter, the plumbing and heating industry for the first half of 1937 has shown an increase of better than one-fourth over the first half of last year. Factory shipments of plumbing and heating items continue to show wide gains over last year with automatic heating equipment and plumbing brass registering the best gains.

Although the business increase for June was not as great as that of previous months, it is particularly encouraging to find that the industry was able to show as good a gain as they were during June. From all sections there are reports from wholesalers indicating that they feel the situation is now pretty well straightened out and progress will be upward in the last half of the year.

Key Wholesalers

For the month of June, 128 key wholesalers reported an average gain of 15.7 per cent over June of 1936. For the first six months these 128 wholesalers reported an average increase of 29.1 per cent over the first half of last year. Fifty-six expected business during July to be better than that of July 1936, forty-seven expect it to be about the same, seventeen expect a decline and eight did not comment.

New England States: Nine key wholesalers in the New England States reported an average increase of 5.2 per cent for June 1937 as compared with June 1936. However, for the first six months these same wholesalers reported an increase of 30.4 per cent over the first half of 1936. One of these firms expects business in July to be better than in July last year, and eight expect business to be about the same.

Middle Atlantic States: For the month of June, 44 key wholesalers in this section reported an average gain of 6.5 per cent over June, 1936. For the first half of '37 they reported an increase of 25.1 per cent over the same period of 1936. Nine of these firms expect business next month to be better than July last year, eighteen expect it to be the same, twelve expect a decline and five did not comment. Pennsylvania, showing a gain of 18.5 per cent, was by far the leading state in this section, while New York and New Jersey tabulated together showed an average decrease of .08 per cent.

A wholesaler in New Jersey remarked that as prices have leveled off people seem to be more confident and are beginning to buy again. However, another New Jersey wholesaler stated that increases in prices appear to be curtailing new home construction. A third New Jersey wholesaler remarked that some manufacturers are making concessions on cast iron and steel fittings and cast iron soil pipe and fittings. He also stated that new building construction in his section has stopped and that the replacement market is fair.

Two Pennsylvania wholesalers reported that strikes in their territory will retard business. Another wholesaler in Pennsylvania reports that there has been a weakening of prices on certain staple items and a change in quantity requirements of brass pipe and

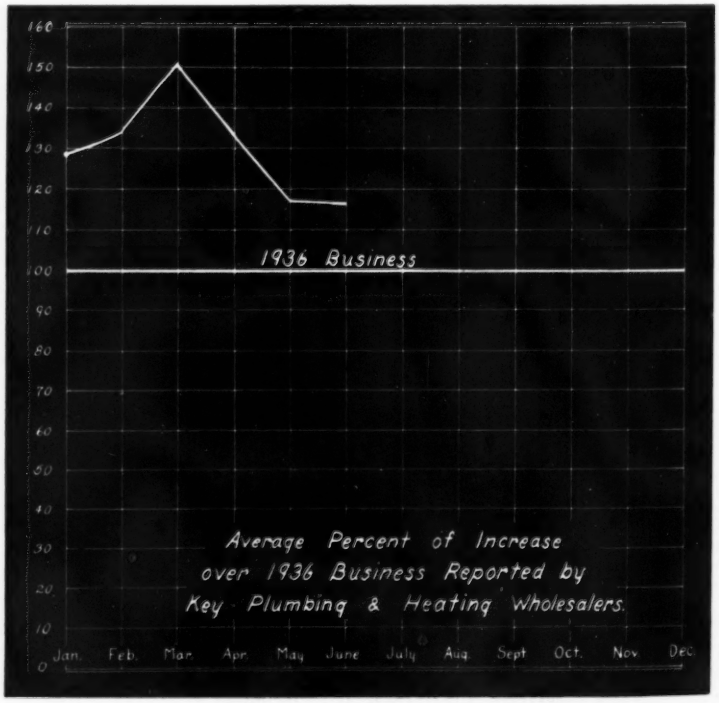


Chart stands at 115.71, an increase of more than 15 per cent over June, 1936

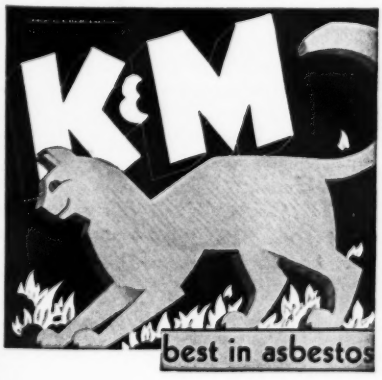
Insulations that keep customers satisfied . . . . .

K&M AIR CELL and "Featherweight" 85% MAGNESIA

For utmost insulating effectiveness, you can be sure of 85% Magnesia. It does not lose its efficiency. Water-leakage and steam do not harm it. Even floods cause no permanent damage.

For an inexpensive insulator, K&M Air Cell provides unusual efficiency. Made of alternate layers of corrugated and plain asbestos felt, firmly bonded together. Both of these products come as pipe insulation in sections, and in blocks. Easily installed—fine-looking when complete.

These, like all other K&M products, have behind them more than 60 years' experience, as well as the most rigid quality-control in manufacture. The K&M line is complete, priced right, and sold by the right people . . . sold only through established channels of distribution.



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Asbestos Air Cell Insulation in sections and blocks • Woolfelt Pipe Insulations • "Featherweight" 85% Magnesia Pipe Insulations and Blocks • Asbestos Insulating Cements • Asbestos Paper and Mill Board • Asbestos Packings and Gaskets • Range Boiler Jackets • Asbestos Lead Joint Runners.

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KEASBEY & MATTISON COMPANY AMBLER, PENNA.

MAY BUILDING PERMITS—40 Most Active Cities

State and City	New Residential Buildings	Families Provided For	New Non-Residential Buildings	Total (Including Repairs)
NEW ENGLAND STATES				
Bridgeport, Conn.	$ 53,900	18	$ 522,500	$ 602,855
Hartford, Conn.	36,950	7	122,711	673,031
West Hartford, Conn.	436,100	57	28,810	519,393
Boston, Mass.	193,100	41	133,525	787,605
Lawrence, Mass	15,000	4	431,769	477,370
Wellesley, Mass.	147,000	16	737,700	912,000
MIDDLE ATLANTIC STATES				
Buffalo, N. Y.	146,000	22	400,541	643,742
New York City:				
The Bronx	1,370,800	377	819,635	3,223,006
Brooklyn	2,100,400	525	518,062	3,840,480
Manhattan	230,000	68	3,714,900	6,550,630
Queens	2,517,850	603	2,919,279	6,005,604
Richmond	292,800	38	182,790	673,840
Scarsdale, N. Y.	553,430	78	.....	578,980
Yonkers, N. Y.	281,800	41	297,537	654,837
Philadelphia, Pa.	676,300	180	1,095,130	2,635,640
Pittsburgh, Pa.	306,900	61	145,070	695,027
EAST NORTH CENTRAL STATES				
Chicago, Ill.	848,550	119	2,361,513	3,981,978
Riverdale, Ill.	14,900	3	80,075	815,825
Detroit, Mich.	1,423,776	261	1,007,996	3,203,126
Cincinnati, O.	779,600	160	206,100	1,280,550
Cleveland, O.	331,500	120	244,675	867,777
Columbus, O.	510,450	93	149,000	728,850
Milwaukee, Wis.	322,665	62	76,827	1,163,049
WEST NORTH CENTRAL STATES				
Minneapolis, Minn.	228,175	58	134,145	702,105
St. Louis, Mo.	322,335	79	644,403	1,142,810
Lincoln, Neb.	49,650	16	342,915	423,337
SOUTH ATLANTIC STATES				
Washington, D. C.	2,737,350	616	934,000	4,376,744
Miami, Fla.	722,837	167	222,134	1,475,864
Miami Beach, Fla.	1,207,350	168	84,500	1,436,150
Baltimore, Md.	677,000	116	392,400	1,525,777
Richmond, Va.	116,850	25	673,528	853,088
WEST SOUTH CENTRAL STATES				
Oklahoma City, Okla.	359,925	139	299,336	686,616
Fort Worth, Texas	211,431	71	311,746	565,269
Houston, Texas	871,250	225	334,200	2,350,465
San Antonio, Texas	250,060	78	174,685	515,887
MOUNTAIN STATES				
Denver, Colo.	538,300	109	223,585	921,826
Salt Lake City, Utah	223,890	57	90,378	482,010
PACIFIC STATES				
Beverly Hills, Calif.	466,700	72	14,350	503,300
Glendale, Calif.	416,725	90	53,810	487,317
Los Angeles, Calif.	3,643,023	1,013	1,471,265	5,726,421
Oakland, Calif.	633,083	123	123,798	912,847
Pasadena, Calif.	237,263	43	317,638	627,007
Sacramento, Calif.	203,300	52	2,802,995	3,054,619
San Francisco, Calif.	953,400	232	659,273	2,211,630
Portland, Ore.	348,100	81	146,820	694,457
Seattle, Wash.	1,360,875	66	161,810	1,715,320

copper tubing. He also states that evidently wholesalers are still "volume and not profit minded" as prices on certain regularly called for items are being sold on very close margins.

South Atlantic States: Fourteen wholesalers in this section reported an average gain of 34.6 per cent in June of this year over June 1936. These fourteen wholesalers reported an average gain of 30.1 per cent for the first half of 1937 over the first half of 1936. Eleven of these companies expect July to be better than July of last year and three expect it to be about the same.

East North Central States: Thirty-two wholesalers in this section report an increase of 22.4 per cent in June of this year over the same month of last year; and for the first half of '37 their average gain was 34.8 per cent. Nineteen expect businss in July to be better than July of last year, seven expect it to be about the same, four expect a decline and two did not comment.

East South Central States: Four wholesalers in this section reported an average gain of 29.2 per cent for June 1937 over the corresponding month of last year and a gain of 23.5 per cent for the first half of this year over the same period of last year. One of these firms expects business in July to be better than July 1936, two expect it to be the same and the last did not comment.

West North Central States: For June 1937 sixteen West North Central wholesalers reported an average gain of 13.8 per cent over June of last year and an increase of 24.3 per cent for the first six months of '37 over the same period of '36. Ten of these firms expect business to be better in July than it was in July 1936 and five expect it to be about the same.

One wholesaler in Iowa remarked that business will be better because the consumer is better able to buy. A wholesaler in Kansas remarked that with wheat crops coming in, business should get better, but there seems to be a tendency to hold wheat for better prices, which will make conditions slow. He also reports that there are quite a few crop mortgages in his state. Another Kansas wholesaler reports a similar crop situation.

West South Central States: Three wholesalers in this section reported an average increase of 11.1 per cent for June 1937 over the same month of last year, and an increase of 32.7 per cent for the first half of '37 over the first half of '36. One expects business to be better in July than it was in July 1936 and two expect it to be about the same.

Pacific States: Six wholesalers in this section reported an average gain of 14.8 per cent for June 1937 over the same period of 1936 and an increase of 29.3 per cent for the first half of this year over the same period of last year. Four expect business to be better in July than it was in July 1936 and two expect it to remain about the same.

Air Conditioning

Forty-four utilities reported 720 installations in their territories during the month of June as against 504 during June of last year—a gain of 42.9 per cent. The June 1937 installations required 9,875.05 horsepower while the June 1936 installations required 7,741.76 horsepower—or a gain of 27.6 per cent. For the first six months of 1937 these same 44 utilities reported 2,324 air conditioning installations as against 1,433 for the corresponding period of 1936. This is a gain of 62.2 per cent. The horsepower for the first half of this year was 65,157.63 and 35,839.33 for the first half of last year, or a gain of 81.8 per cent.

Oil Burners

Forty-five cities reported a total of 1,880 oil burner permits issued during June 1937 as against 1,858 in June 1936, an increase of 1.2 per cent. For the first half of this year these 45 cities reported 10,682 oil burner permits issued as compared with 9,451 for the first half of last year—a gain of 13.0 per cent. Although the increase for June was small it was due principally to the fact that permits in June 1936 were exceptionally high. For the month of May, shipments of oil burners as reported by the Department of Commerce were 16.59 per cent ahead of May last year.

Stokers

Eighteen cities reported 262 stoker permits issued in June 1937 as compared with 176 in June 1936—a gain of 48.9 per cent. For the first six months of this year these 18 cities reported 1,253 permits as against 976 for the corresponding period of last year—or a gain of 28.4 per cent.

Gas Heating

The American Gas Assn. has reported 163,500 house heating customers on the lines of manufactured gas utilities during April of 1937. This is an increase of 5,400 over the previous month of this year and an increase of 23.1 per cent over April of 1936. Simi-

Gas Industry's Great Campaign Swings into 2nd Year

Stronger than Ever!

10 Great National Magazines Now Help You Sell Gas Appliances

The Gas Industry is swinging into the second year of its great nation-wide campaign to make GAS more than ever the favorite fuel in American homes.

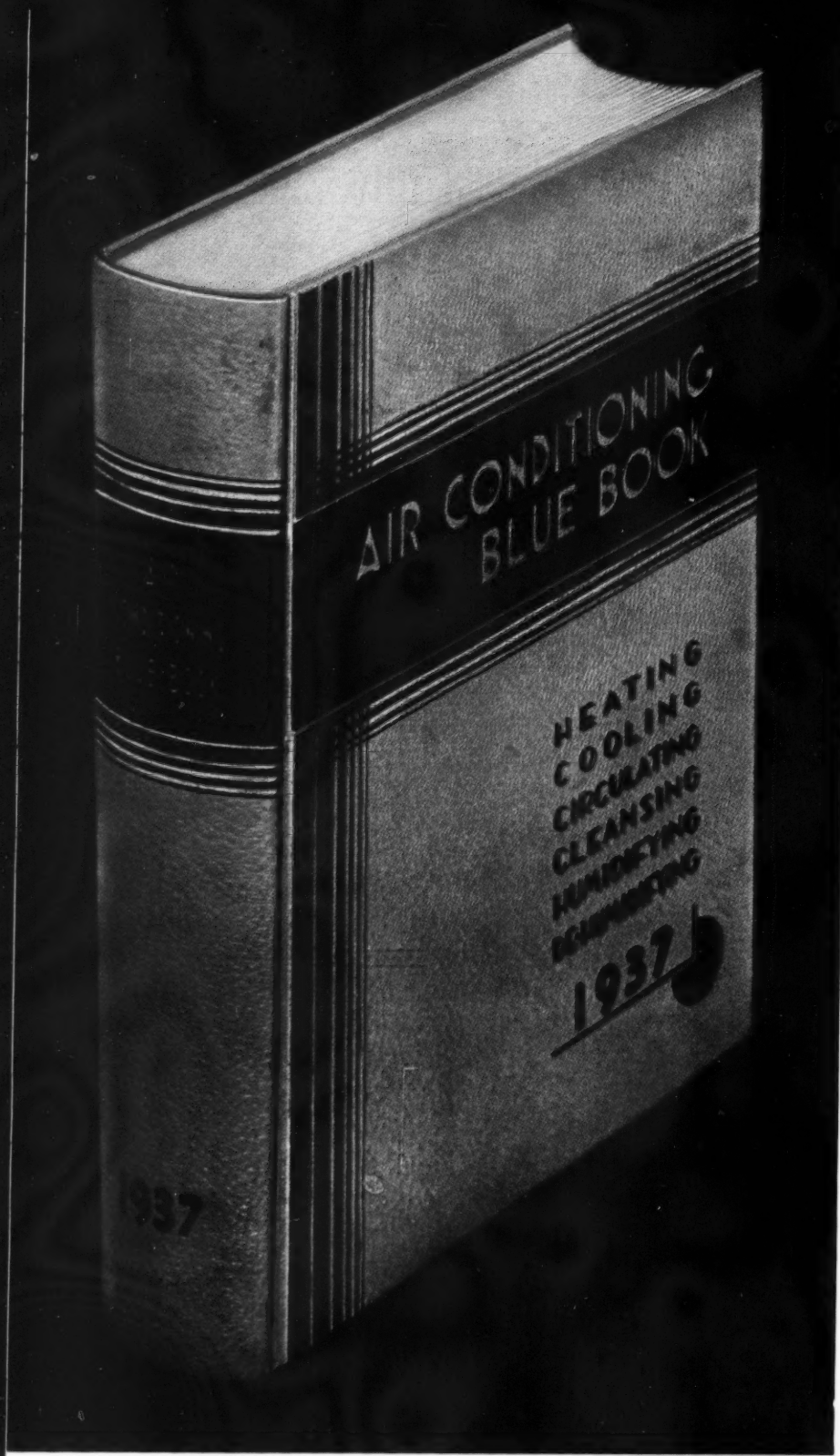
Again full pages in color will drive home the advantages and exclusive features of GAS. And *this* year, national magazines of more than 18,000,000 circulation will carry this story to American home-owners.

Already the response to this concerted effort, in which more than 700 gas companies are sharing, has been impressive. For it is measured by the tens of thousands of "Controlled Cooking" booklets that have been distributed—and by the increased sales of gas appliances for cooking, house-heating, water-heating and refrigeration.

Your local Gas Company will gladly help you make this second year's advertising even more effective and profitable for *you* than the first. Talk it over with them today.

Be sure the gas appliances you sell carry the Blue Star Seal of the American Gas Association Laboratory.

AMERICAN GAS ASSOCIATION



Vital
REFERENCE DATA YOU'LL WANT TO KEEP *at your fingertips*

In the AIR CONDITIONING BLUE BOOK you'll find all of the product and technical information so essential to the successful heating or air conditioning installation. If you are concerned in any way with the design, specification, installation or servicing of equipment for use in this field, the AIR CONDITIONING BLUE BOOK contains vital reference data you'll want to keep constantly at your fingertips. Glance over its contents and judge it for yourself.

MANUFACTURERS' CATALOGS

In this section well over a hundred pages have been devoted to the catalogs of leading manufacturers of heating and air conditioning equipment. Product information, including illustrations, descriptions, sizes, capacities and various other specifications, are clearly set forth. Conveniently indexed and arranged to facilitate use.

TECHNICAL REFERENCE DATA

Included in this section you'll find several hundred pages of vital information such as standard tables, rules, charts, diagrams and various other technical reference material so necessary to the man who designs, specifies, installs or services heating and air conditioning equipment.

CLASSIFIED DIRECTORY

Listed in this directory are over six hundred items used in heating and air conditioning. The entire section is alphabetically classified with numerous cross references, permitting you to locate quickly, any item desired. Under each heading is given the names of manufacturers who make the item. Manufacturers whose catalogs appear in the catalog section are indicated with a ● wherever their products are listed in this section.

TRADE NAME SECTION

There are many instances where you may be familiar only with the trade name of an item. This section permits you to establish, quickly, the name of the manufacturer. You'll find frequent occasion to refer to this section.

NAME AND ADDRESS SECTION

The names and complete addresses of all known manufacturers of items used in heating and air conditioning are listed in this section.

If you're engaged in heating or air conditioning you'll need the AIR CONDITIONING BLUE BOOK every day. You'll need the product and technical reference information it contains. You'll find it indispensable in figuring heating and air conditioning requirements. You'll need the BLUE BOOK for your buying and specifying activities . . . and you can rely on it for accuracy.

You'll want to keep the AIR CONDITIONING BLUE BOOK handy at all times for ready reference. If you have not already done so, order your copy of the 1937 edition today. The price, postpaid, is $3.00 per copy.

AIR CONDITIONING BLUE BOOK
1900 Prairie Ave. Chicago, Ill.

AIR CONDITIONING BLUE BOOK

lar data on natural gas territories is not available.

Building Construction

According to the United States Department of Labor, there was a decrease of 16.1 per cent in the value of buildings for which permits were issued in May as compared with the previous month, according to reports received by the Bureau of Labor Statistics from 1,549 identical cities having a population of 2,500 or over. These reports indicate a decrease of 22.5 per cent in the value of new residential construction, a decrease of 9.8 per cent in new nonresidential construction and a decrease of 9.4 per cent in the value of permits issued for additions, alterations, and repairs to existing structures.

With the exception of additions, alterations and repairs, these decreases were more pronounced in larger cities than in the smaller towns. For example, total construction decreased 18 per cent in cities having a population of 25,000 or over and only 10 per cent in cities having a population of less than 25,000. The value of new residential buildings decreased 27 per cent in cities with a population of 25,000 or over and 12 per cent in those under 25,000. New nonresidential buildings showed a decrease of 13 per cent in larger cities, but an increase of 2 per cent in the smaller cities.

The May rate of building activity was still above the level of a year ago. Measured by the value of permits issued, an increase of 27.8 per cent was shown in new residential construction, a gain of 22.6 per cent in new nonresidential construction, and an increase of 17.0 per cent in the value of additions, alterations and repairs. The total value of buildings for which permits were issued in these cities was 23.6 per cent greater than in May 1936.

Metal Prices

(Prices as of July 29, 1937)

New Metal Market—Strong.

Electrolytic Copper—Delivered Middle West, $14.125.

Lead—$5.85 cwt., St. Louis; $6.00 cwt., New York.

Ingot 5 lb.—$6.50 cwt., St. Louis.

Zinc—$7.00 cwt., St. Louis.

Tin—$59.00 cwt., New York.

Brass Ingot—85/5/5/5, $13.75; $14.00 LCL Delivered.

Yellow Ingot—68/1/2/29, $11.00; LCL Delivered, $11.25.

Scrap Metal—Strong.

Composition and steam brass—$9.00 cwt.

Strictly Heavy Yellow Brass Scrap, Cast—$7.50 cwt.

Mixed, strictly cocks and faucets (including ball cocks, etc.)—$7.75 cwt.

Light brass, tubes, pipes, old sheets, etc.—$6.50 cwt.

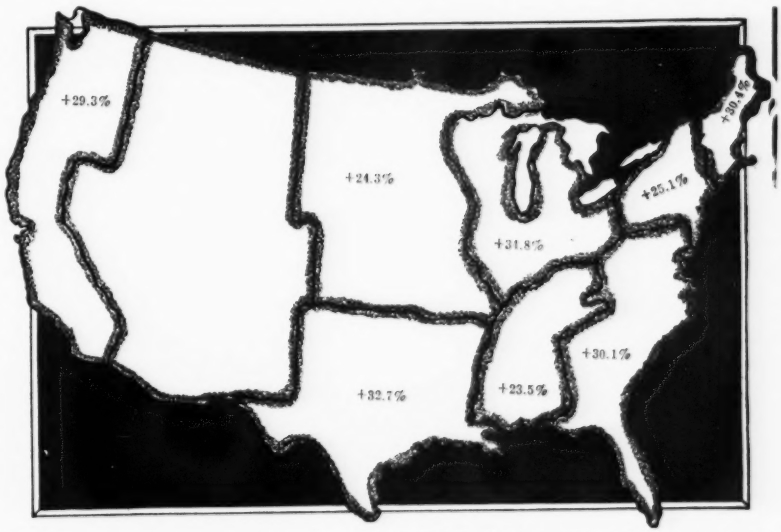
Old scrap lead pipe, etc.—$5.00 cwt.

Copper sheathing, free of nails—$9.50 cwt.

Copper boilers, tanks and other light materials—$8.75 cwt.

Soldered joints—Cwt., FOB, Chicago—Nominal.

Block tin—$51.00 cwt., f. o. b., Chicago.



This map shows the average percentage of change in the business of key wholesalers in each section of the country for the first six months of 1937 compared with the first six months of 1936

SHIPMENTS OF PLUMBING AND HEATING ITEMS

	May, 1937	May, 1936	Total First 5 Months 1937	Per cent of Change First 5 Months '37 Compared with First 5 Months '36
Cast Iron Boilers Thousands of Pounds	14,332	15,795	75,625	+ 7.2
Cast Iron Radiation Thousands of Ft. of Heating Surface	4,416	4,175	21,568	+21.77
Steel Boilers Number of Units	755	720	4,259	+27.51
Range Boilers Number of Units	55,865	61,194	438,920	+34.50
Domestic Water Systems Number of Units	17,759	13,718	85,792	+51.49
Oil Burners Number of Units	14,406	12,356	62,618	+34.51
Mechanical Stokers (for residential, apartments and small commercial use)	6,580	3,773	23,794	+62.17
Domestic Water Softening Apparatus Number of Units	1,098	1,014	5,527	+22.39
Plumbing Brass Thousands of Pieces	1,704	1,501	10,179	+41.79

KEY WHOLESALERS

	Pct. of change as compared with same month of last year	Pct. of change for the first 6 mos. of this year compared with the same period of last year	Prospects for next month compared with the same month of previous year appear: Better	Same	Worse	No Comment	Total Reports
New England	+ 5.15	+30.42	1	8	0	0	9
Middle Atlantic	+ 6.55	+25.09	9	18	12	5	44
South Atlantic	+34.63	+30.06	11	3	0	0	14
East North Central	+22.44	+34.84	19	7	4	2	32
East South Central	+29.20	+23.49	1	2	0	1	4
West North Central	+13.81	+24.28	10	5	1	0	16
West South Central	+11.08	+32.70	1	2	0	0	3
Mountain	..	..	..	..	..	..	..
Pacific	+14.83	+29.25	4	2	0	0	6
			56	47	17	8	128

Construction Report

June of this year set a new high in construction recovery, topping the previous high set in July, 1936. The June construction total covering all classes of work amounted to $318,137,100 in the 37 states east of the Rocky Mountains. This registered an increase of 30 per cent over the figure set for May of this year as well as being an increase of approximately 37 per cent over the June 1936 total.

Residential building accounted for $93,123,100 of the total amount; nonresidential building came to $125,087,000; and public works and utilities accounted for the remaining $99,927,000. Increases in residential building as compared to a year previously were well distributed geographically with all important major areas sharing in the advance except metropolitan New York and the St. Louis territory.

Mortgage Rates

The Twenty-ninth Semi-Annual Survey of the Real Estate Market has shown the present actual rate at which first mortgage loans on new moderately priced homes most commonly are being made now. Of 245 cities contacted, the largest number indicate that 6 per cent is the rate most common. An entire range above 6 per cent was given by 13.5 per cent of the cities. On the other hand, 43 per cent of the cities indicated that the most common rate is under 6 per cent. No city reported a range lower than 4½ per cent.

Building Program

A nation-wide program to assure the small home builder a sound investment and eliminate shoddy construction has been announced by the Federal Home Loan Bank Board.

Developed and tested during the past two years through the twelve Regional Banks of the Federal Home Loan Bank System, the plan will link home-financing agencies, architects and technicians to bring supervised construction to a field which embraces 83 per cent of American families, whose annual income of $3,500 or less restricts them to homes costing less than $8,000.

The plan, to be known as the Federal Home Building Service Plan, is designed not only to benefit the home seeker, but to safeguard lending agencies in a field where it is expected that $2,000,000,000 will be spent annually for the next decade. It strikes directly at past evils which have resulted in rapid deterioration of properties, dwindling equities and the passage of entire neighborhoods into a state of obsolescence.

A. C. Sales

The installed cost of air conditioning equipment during the first five months of this year exceeded the total for the entire year of 1936, according to a report made by the Air Conditioning Manufacturers' Assn. Up to June 1, the buying public had spent $50,131,360 for air conditioning equipment as compared to $49,942,301 throughout 1936. The total for May of this year was 43.2 per cent greater than during the same month last year.

Good News

Keasbey & Mattison Co., Ambler, Pa., is now constructing a new plant at Ambler. Estimated cost is $760,000. The new plant when completed will have a floor area of 143,000 sq. ft. A second plant is scheduled to be started in St. Louis, Mo. This new plant will cost in the neighborhood of $500,000.

* * *

News Note: Johns-Manville Sales Corp., New York City, has made plans to expand its plant at Alexandria, Ind.

* * *

News Note: The Milwaukee Valve Co., Milwaukee, Wis., has plans to start work immediately on a new two-story foundry. The new building will be 70 ft. by 160 ft. in size.

* * *

News Note: Key Co. has awarded contracts for an addition to its plant at East St. Louis, Ill. The addition, it is estimated, will cost $500,000.

* * *

News Note: Chicago Pump Co. has made plans for the erection of a two-story factory unit in Chicago.

Prevailing Prices

• *Publicity carried by many newspapers on present low prices of plumbing and heating materials—Prospects urged to build homes now*

"While commodity prices in general have increased considerably in recent years, there has been only a very slight increase in the price of plumbing goods with the result that prices of staple plumbing materials today are from 14 to 33⅓ per cent below the base price for 1926."

"An examination of the plumbing index numbers shows a decline to 92 in 1927, a rise to 95.1 in 1928, a decline to 88.6 in 1930, followed by further declines in 1931, 1932 and 1933. The all time low was reached in February, 1933, with the average price of plumbing materials represented by an index number of 59.4."

"The general commodity index number for 1933 was 71.2. A study of the trend of plumbing prices in comparison with the average price of all basic commodities shows conclusively that plumbing prices declined further than commodity prices in general."

"Not only is plumbing less costly, but the buyer today has the advantage of all modern improvements, both as to appearances and efficiency of operation. The upward trend of plumbing prices began in May, 1933, and continued until March, 1937, and since March there have been no changes in the basic cost, according to the bureau of labor statistics."

"While price adjustments occurred early this year, they were very minor. Thus, the difference between the average index number for 1936 of 75 and the index number today, 78.7 is only 3.7 points, or a difference of 5 per cent. When applied to a plumbing installation costing $250, this means that the price of basic materials is only $12.50 more today than it was in 1936."

"The man who builds or modernizes this year gets the advantage of the revolutionary improvements that have been made in everything entering into a complete installation from the superb beauty of the fixtures in the bathroom and kitchen to the trouble free performance of the entire system, assured by advances in installation practice."

"A survey by a large manufacturer of heating equipment has revealed that residential building costs have increased less than 10 per cent in a majority of cities. Figures were obtained on the cost of an identical six-room house in various cities. The survey showed that in 56 cities costs were less than 10 per cent higher during the first three months of this year than they were in the first three months of last year."

The Plumbing and Heating Industries Bureau has recently released information on prevailing low prices of plumbing and heating equipment. This information has been carried in a very large number of newspapers throughout the country. Most of the articles as they appeared in their newspaper form were interviews with plumbing and heating wholesalers. Comments from several of these interviews quoted above tend to refute the prevailing opinion that building costs have soared.

THE PANCAKE COIL

BRIGHT . . . CLEAN FLAWLESS!

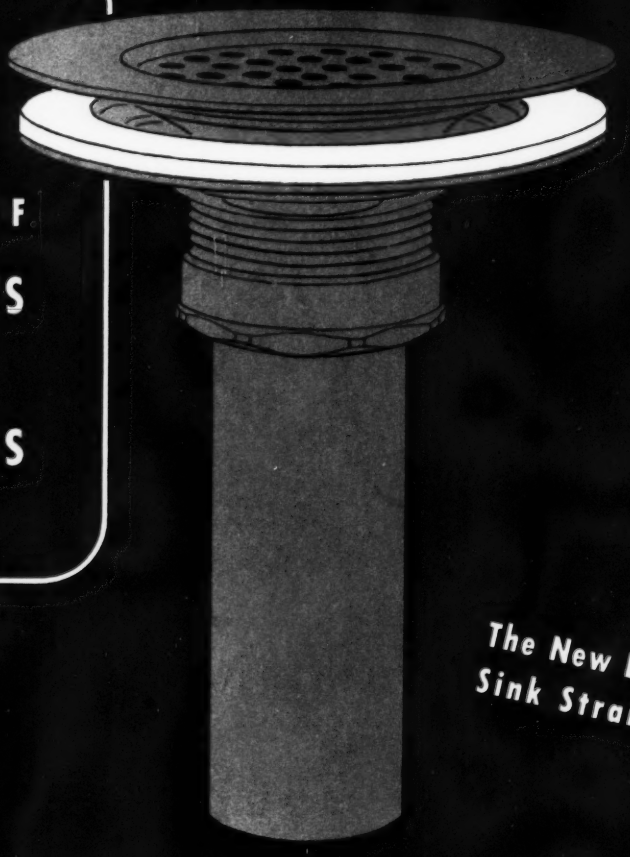
THE PANCAKE COIL has received an enthusiastic welcome and for good reasons. It is copper tube in a new and more convenient form . . . easier, more economical to pack, ship, store and handle. But just as important are its bright and shining uniformity, its complete freedom from dents, defects, or the slightest imperfections. It comes to you just as it comes out of the very modern annealing furnace shown here. Thorough cleaning and careful inspection guarantee flawless top quality in every inch. Have you discovered the advantages of the Pancake Coil? It is a typical Bridgeport contribution to your progress and profit.

"Bridgeport"

BRIDGEPORT BRASS COMPANY
Bridgeport, Conn. • Established 1865

C—O M P A R E

THE FASTER-TURNOVER FEATURES OF BRIDGEPORT'S PLUMBERS' BRASS GOODS



The New Large Sink Strainer

YOUR customers will immediately see the points of superiority in the *new* Bridgeport line. They stand out clearly and convincingly. They mean easier selling . . . quicker turnover. Consider, for example, the extra advantages incorporated in the Bridgeport New Large Sink Strainer for sinks with 3½" outlet.

1. Supplied with 4½" Flange and 2¾" Insert Strainer perforated for quick drainage. Outlet Shank 1½" I.P.S. threads.

2. Bridgeport's Duraplate Chrome—heavy chrome over extra heavy nickel insures an attractive, lasting finish.

3. Furnished with cast brass lock nut, and heavy flange washer.

4. Also equipped with the highest quality rubber washer.

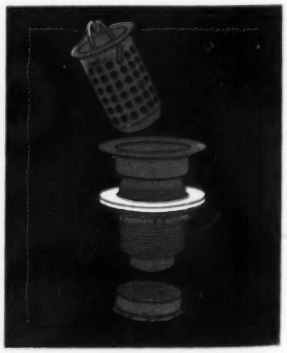
5. Designed to completely eliminate clogging and collection of refuse.

6. Guaranteed against defects.

7. Either 1¼" or 1½" tail piece from 4" to 12" long can be furnished if desired.

8. Carefully wrapped in a specially attractive strong fibre carton, clearly labeled for quick reading.

ANOTHER EXAMPLE of more for your money Bridgeport value is the new Basket Type Sink Strainer and Stopper that makes an old sink modern. The crumb basket is the largest on the market for sinks with 2" to 2½" openings. Handles at the top allow removal without touching waste matter. By a flip of the handle the basket acts as drain or stopper. Easy to install, low in price. Of Brass finished in gleaming chrome plate.



These are features that are pushing Bridgeport products to top preference among dealers and home owners. They are typical of the advanced improvements we have engineered with the whole line. Compare the Bridgeport line with any other on the market. There is a wide difference between this built-in durability and "flashy" lower priced merchandise. Note the quicker-selling, faster-turnover features—and make them work for you.

BRIDGEPORT BRASS

BRIDGEPORT BRASS COMPANY • BRIDGEPORT, CONN. • ESTABLISHED 1865

"Bridgeport" BRASS

Supply

Association Golf

- *Second half of summer season marked by large number of golf tournaments on the part of various associations within the industry*

With the start of the second half of summer, many associations within the industry have scheduled golf tournaments. Special tournaments and inter-association matches have, and are being scheduled. Tournaments and various meets are marked this year by larger turnouts than for several years past. Both this and other news sections in this issue contain a number of accounts on the various tournaments which have been held during the past month.

Delaware Golf

The Delaware Valley Trade Golf Assn. held a tournament at Congressional Country Club, Washington, D. C., June 29. In doing this the association followed out a policy of many year's standing in holding at least one meet a year at either Washington or Baltimore, Md. The following men were sponsors for the tournament: Claude Owen; William Hanson; Charles P. L. Moran; Ed. Pierce; A. J. Somerville; Harrison Somerville; Rod Watson; Paul Holmes; Thomas Burke; J. Harper; E. Sutter; and Frank Hackett.

In addition to the officers, brief talks were made in the evening by W. A. Speakman, Jr., and Sec. H. J. Kleinman. Prize winners included the following men: W. A. Speakman, Jr.; F. C. Hackett; E. E. Sutter; Chas. P. Hackett; Nat Barr; Thomas Thomas; Ellis McPhail; Ed. Pierce; Jack Nurney; James Fraser; H. J. Kleinman; A. A. Ahlff; H. J. Carr; James P. Harper; Claude W. Owen; Paul Holmes; Wm. C. Hanson; and Harold Peace. Scores turned in for the morning round of nine holes were as follows:

E. E. Sutter	50	13	37
T. F. Burke	55	15	40
H. J. Carr	48	9	39
A. A. Ahlff	47	6	41
W. A. Speakman, Jr.	45	11	34
James Fraser	45	7	38
Thomas E. Thomas	50	8	42
Ed. F. Pierce	49	10	39
Frank C. Hackett	48	12	36
Curtis Sinclear	67	15	52
Harold C. Peace	46	8	38
John R. Nurney	51	10	41
James P. Harper	46	7	39
Paul Holmes	57	15	42
Wm. Abernathy	51	8	43
Nat. Barr	47	8	39
Claude W. Owen	52	10	42
Wm. C. Hanson	57	10	47
H. J. Kleinman	52	10	42
C. P. Hackett	49	12	37

Afternoon round scores for eighteen holes of medal play were as follows:

H. J. Carr	97	18	79
Thomas Thomas	86	15	71
Ellis McPhail	85	13	72
Harold C. Peace	96	16	80
Albert A. Ahlff	90	12	78
Ed. Pierce	94	20	74
Jack Nurney	96	20	76
Frank C. Hackett	106	24	82
Thomas Burke	120	30	90
Jack Sutter	106	27	79
Ed. Walker	94	26	68
Jack Phelan	91	17	74
James P. Harper	95	15	80
John D. Burnham	103	18	85
Charles Tippett	103	11	92
James Fraser	90	14	76
W. A. Speakman, Jr.	103	22	81
Paul B. Holmes	117	30	87
Wm. Abernathy	96	16	80
Nat Barr	104	16	88
Curtis Sinclear	132	30	102
J. P. Riesmeyer	No card		
F. W. Morris	No card		
R. H. Gardner	No card		
Wm. C. Hanson	109	20	89
H. J. Kleinman	97	20	77
Claude W. Owen	104	20	84
Charles P. Hackett	107	24	83

N. J. Golf

The members of the New Jersey Plumbing & Heating Trades Golf Assn. accepted the invitation of the

Taken at the golf tournament held during the meeting of Wholesale Distributors Assn. of New England. Standing: Larry Lasher, Anderson Products, Inc. Seated: John G. Ross, Republic Steel Co.; Al Papineau, Domestic Engineering; Frank Johnson, General Fittings Co.; Harry Rivers, Boston Pipe & Fittings Co.

Eastern Trades Golf Assn. to play as their guests on July 22 at the Baltusrol Golf Club, Springfield, N. J. About thirty members of the New Jersey association and guests reported. W. C. Cliff won his first leg on the association cup with a net 70.

The following turned in scores for the eighteen holes in afternoon:

Gobasch, C. P.	110	15	95
Murphy, W. H.	89	15	74
Turno, W. G. (Guest)	117	..	..
Denicke, C. H. (Guest)	103	..	..
Powell, J.	91	10	81
Robinson, F.	93	15	78
Lee, H.	103	21	82
Gasewind, A.	102	20	82
Buday, J. M.	130	34	96
Lange (Guest)	119	..	..
Engelberger, F.	110	21	89
King, W.	119	27	92
Dodson, F.	120	39	81
Burns, G.	114	36	78
Cashman, A. B.	95	18	77
Cliff, W. C.	91	21	70
Tesch, A.	117	33	84
Keller, G. (Guest)	109	..	..
Ingram, Ira	101	24	77
Miner, J.	105	24	81
Stutz, E.	98	18	80
Dennis, V. (Guest)	107	..	..
Kratt, W.	117	36	81
Relyea	118	36	82
Macauley, J.	104	21	83
Snyder, D.	101	18	83

Modernization

- *American Radiator Co. announces campaign to create heating and air conditioning sales*

A nation wide home modernization campaign to create heating and air conditioning sales with the approach of the fall season, has just been announced by the American Radiator Co. In announcing the campaign, Arthur R. Herske, vice president and general manager of sales, said that as a special feature a premium will be given to all home owners who have a contractor install one of the company's complete heating or conditioning systems as a means of helping the contractors close sales. An electric vacuum cleaner will be offered as the premium. Opening on August 15, the campaign will continue until October 15.

The premium policy, Mr. Herske pointed out, has been successfully employed by manufacturers in the sale of electric refrigerators, kitchen stoves, and other household equipment, but has never been used extensively in the heating industry. In the handling of the premiums, reservation cards will be supplied to contractor-dealers for distribution to their prospects and any person filling out one of these cards before October 15, will receive the vacuum cleaner offered, if he has the installation in his home completed before December 31, 1937.

Window Display

Special window displays announcing the gift offer have been prepared as an additional selling aid to contractor-dealers, and an organization has been retained by the company to install these displays in contractors' show windows at no cost to the contractor.

A complete selling kit including hand bills, direct mail pieces, bid proposals, addenda bids, a sheet of newspaper advertising mats with instructions, local publicity stories in the contractor's name and a special consumer presentation, will be supplied to all contractors. Installation signs, with the contractor's name on them, will also be available upon request. In addition, arrangements have been made whereby contractors may obtain window signs.

Backing this campaign, the company will carry advertisements in more than 300 newspapers throughout the country with insertions of from 40 to 700 lines three times a week.

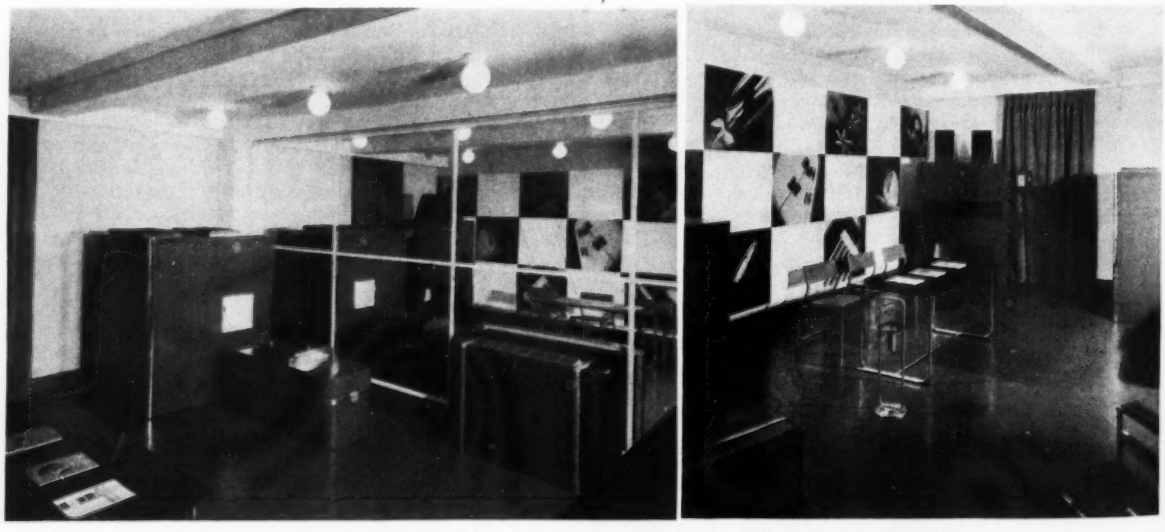
The entire consumer campaign will stress the advantages of modern radiator heat conditioning as installed by the radiator heating contractor for "personal comfort," continuing the use of the slogan "P. C." adopted for the company's advertising this year. In discussing the campaign, Mr. Herske declared that it was particularly important at this time to emphasize modernization sales efforts.

"The sale of heating, air conditioning, or materials," he said. "is vital for modernization developed largely in the depression years when new construction work was at a minimum. Now, with interest in new construction increasing again, it is important that the industry retain the technique that it has developed for modernization sales.

"The market for modernization work is as large today as it has ever been, and its continued cultivation will not only serve to supplement new construction work as that market returns to normal, but will open up for our own, and other branches of the building industry, a wider market than has ever before existed from which can be gained the combined benefits of both modernization and new building sales."

New Offices

The new Chicago offices of The Herman Nelson Corp., Moline, Ill., have employed in their design murals, mirrors and color contrasts. The entire layout makes use of every available foot of floor space. The suite consists of reception and display rooms and two private offices, located on the fourth



These two photographs show interior views of the new Chicago office of Herman Nelson Co.

FLASH NEWS · · · OL' BOY "X"

PRESENTS 3 NEW PRODUCTS

20 years ago, Ol' Boy "X" first said "hello" to the trade and Boiler "X" has been the outstanding Stopleak ever since . . . it finds and seals every heating system leak instantly and permanently. Now, following months of research, Ol' Boy "X" presents three sensational new products, each one sold under the same guarantee of performance which has always protected the distribution of "X" Products.. Ask your Wholesaler about these remarkable new products today.

"X" FLUSH and RUSTOFF TREATMENT

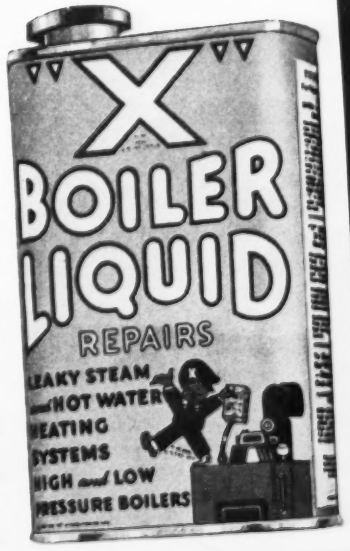
A combination package of two interlocking cans. "X" FLUSH chemically cleans the system without the use of acids. "X" RUSTOFF keeps the boiler water clean while retarding the formation of rust and scale.

"X" PIPEJOIN

Guaranteed, leakproof pipe joint compound for cold and hot water lines. Expands under heat—an ideal filler and lubricant. Prevents corrosion, absolutely non-poisonous.

"X" PIPECUT OIL

The finest cutting oil obtainable for steel, iron, galvanized and brass pipe. Flows well over the threads. Ideal for cooling dies, will not ball up or leave dry spots. Ask for prices on these brilliant new products.



"X" LABORATORIES, INC., 25 W. 45th St., New York, N. Y.

floor of the Michigan Square Building, 540 North Michigan Ave.

The entire wall to the left of the entrance in the reception room is composed of square mural production scenes in the company's factories at Moline, to which alternating white squares give emphasis. Opposite the murals is a white paneled wall of mirrors.

A. C. Exhibit

An interesting display of air conditioning units is to be seen in The Fox Furnace Co. section of the new exhibit hall in the American Radiator and Standard Sanitary Corp. Building at 40 West 40th St., New York City.

Oil, coal and gas fired air conditioners are included in the exhibit. Units not displayed are illustrated in large colored photographs. Accessories such as humidifiers, filters and controls are set up separately. Whenever possible, the equipment is shown in operation.

A section of the exhibit has been converted into a typical basement. Some duct work is shown exposed: the rest is concealed in the joist spaces by means of a ceiling.

This installation is equipped with zone control. There are two zones each controlled by a separate thermostat. Glass covered openings in the bottom of the ducts permit observation of the duct dampers as they are opened and closed automatically by duct damper motors actuated by the thermostats.

A mechanical cooling plant is also connected to this installation. Thus, visitors can see a typical year 'round, winter and summer, air conditioning installation.

Taken at New York regional meeting of oil burner industry

Old Timers

More than 90 representatives of the oil burner industry attended the first meeting of the New York regional group, held July 16 at the Circle Club in New York City. George P. Gregory of Preferred Utilities Co., chairman of the membership committee, presided at the meeting. Frank Harbin, Anchor Post Fence Co., president of the Old Timers' Club, was present at the meeting and read the club's creed. A telegram from A. W. Barr of Mercoid Corp. brought greetings of the New England regional group. At the meeting fifteen new members were initiated into the group. The initiation was under the direction of Earl Marr, assisted by W. A. Matheson.

Resigns Position

Mitchell M. Frey, Jr., has resigned his position as secretary-treasurer of Wm. B. Scaife & Sons Co., Oakmont, Pa., effective July 1. Mr. Frey began his services with the company in 1889 and has been employed continuously for almost 48 years since then. His first position was that of office boy and later was transferred to the shipping department. In 1916 he was elected to the position of secretary-treasurer by the board of directors to fill the position left vacant by the death of C. C. Scaife, Jr. Mr. Frey will continue to serve as a member of the board of directors of the company. Archie V. Murray was elected recently to succeed Mr. Frey as secretary-treasurer.

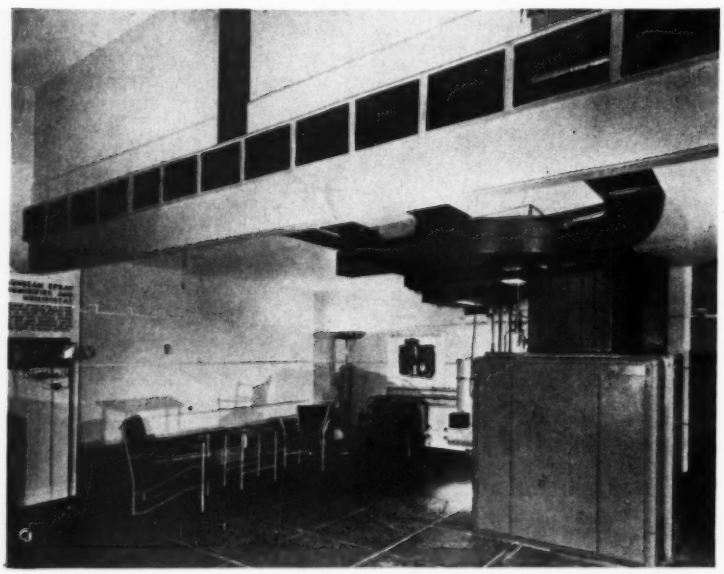
Vacation Plan

A vacation with pay plan for factory employes was announced July 12 by Kohler Co., Kohler, Wis. Provision is made under the plan for a vacation of one week for employes having a record of two to five years continuous service and satisfactory attendance, with an additional day for each additional year of service up to a maximum vacation of two full working weeks. The new arrangement does not affect, in any way, the customary vacations of members of the office and sales forces.

Carl J. Kohler, was unanimously elected treasurer of the Board of Education at the annual meeting of voters, held July 12, in Joint School District No. 2, Kohler, Wis. Mr. Kohler, a son of Walter J. Kohler, chairman of Kohler Co., succeeds H. J. Thorkelson, who declined re-election.

China Changes

At a meeting of the Vitreous China Plumbing Fixtures Assn. on June 17, it was voted to discontinue the manufacture of "local right and left hand vents" and "extended lip or elongated washdown bowls." This action will be effective January 1, 1938 . The reason for withdrawing these items was the lack of demand for "vents" and in the interests of sanitation on "elongated washdown bowls."



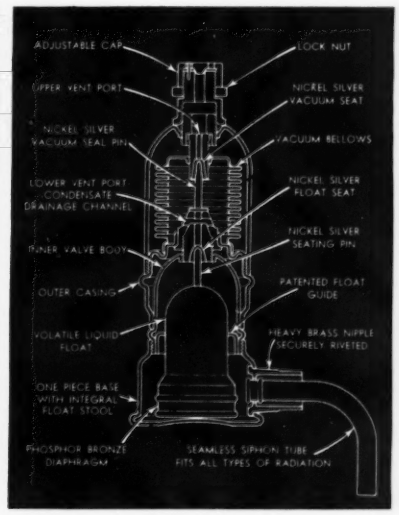
View of Fox Furnace Co. air conditioning exhibit

HERE IT IS

the NEW Warco adjustable VALVE

10 FEATURES OF THE NEW WARCO ADJUSTABLE VALVES

1. Completely adjustable for any degree of venting.
2. Visual adjustment right on top of the valve.
3. Simple to operate—as easy as setting a thermostat.
4. Tamper-proof—can be set and "locked" in place.
5. No removable parts to mislay or become lost.
6. Controlled, balanced distribution of heat.
7. Reduced fuel costs—25-35% less with WARCO Vacuum Valves.
8. Priced to give a liberal margin of profit.
9. An exclusive WARCO feature.
10. Sold only through recognized wholesalers of plumbing and heating supplies.



THE only thing we've changed is the adjustable feature and it's a typical Warco improvement that will make air valve history.

The change is a new fully adjustable venting cap that provides complete visual adjustment over a 180-degree range. It gives controlled, balanced distribution of heat for every room—for every radiator. Simply turn the knurled knob on top of the valve to set the dial where you want it—as easy as setting a thermostat. A simple lock-nut makes it tamper-proof and keeps it set in place.

This big improvement in air valve design is typical of Warco leadership. Check the 10 Features of the new Warco Adjustable Valves and then get the details from your regular wholesaler or write us direct for illustrated catalog.

W. A. RUSSELL & CO.
GRAND CENTRAL TERMINAL BLDG., NEW YORK, N.Y.
Better Valves Since 1890

Warco *air and vacuum* **VALVES**

New Distributors

Sales Representatives, Appointments

Crane Co., Chicago, has announced that Frank Hicks has been added to the company's staff to handle publicity work. Mr. Hicks for many years has been connected with newspaper and publicity work.

Frank Hicks

Perfex Corp., Milwaukee, Wis., has announced the appointment of Ben L. Boalt as vice president of the company. Mr. Boalt's headquarters will be in Milwaukee. He formerly was connected with the Minneapolis Heat Regulator Co.

B. L. Boalt

Hoffman Specialty Co., Waterbury, Conn., has announced that R. A. Potts, Nashville, Tenn., and J. P. Stork, Detroit, Mich., have been added to the company's staff.

Janette Manufacturing Co., Chicago, have appointed the Savage-Girton Co. of St. Paul and Minneapolis, Minn., as distributors for the company's line.

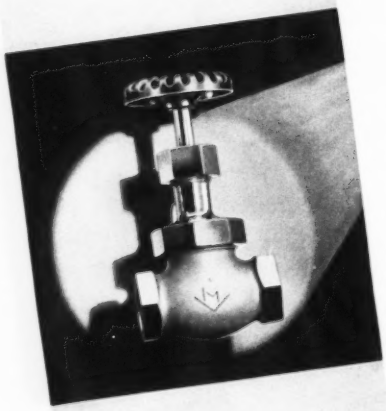
The Boetticher & Kellogg Co., Evansville, Ind., will be exclusive representatives for the Whiting Stoker in nine Indiana counties, twelve Illinois counties and seventeen counties in northwestern Kentucky. W. H. Campbell will have charge of the company's stoker sales department.

M. J. Rieger

The J. A. Zurm Mfg. Co., Erie, Pa., has announced the appointment of Milton J. Rieger as sales representative with offices at 708 Empire Building, Detroit, Mich.

The Josam Mfg. Co., Cleveland, Ohio, has announced the appointment of Jos.

QUALITY *plus* AT NO PREMIUM IN *Price!*



The plus value in MILVACO products may by certain standards of comparison, be a hidden property . . . . something you experience only in the use of the product . . . . an added safety factor . . . . . longer and more dependable service.

Or perhaps by direct comparison you'll note in addition the finer engineering features . . . . precision manufacture . . . beautiful finished appearance and other equally important features.

The PLUS value in MILVACO products . . . for which you pay NO premium . . . is responsible for the ever increasing demand on the part of discriminating buyers from coast-to-coast.

MILWAUKEE VALVE COMPANY

MILWAUKEE, WISCONSIN

MANUFACTURERS OF MILVACO HEATING SPECIALTIES AND APPROVED BRONZE VALVES

J. A. Maloney

A. Maloney as representative for the Newark territory with offices at 850 Broad St., Newark, N. J.

The Graybar Electric Co., Pittsburgh, Pa., has entered the stoker business and will be exclusive distributor for the Whiting Stoker for 24 counties in western Pennsylvania, 10 counties in eastern Ohio and 14 counties in West Virginia. The Graybar branch will have a special department for selling stokers, which will be managed by R. A. Bartley.

A. D. Fowler

Durakool, Inc., Elkhart, Ind., has announced the appointment of Alfred D. Fowler as general sales manager. Mr. Fowler was formerly plastics engineer for the General Electric Co., before which he was with the Bakelite Corp.

Hajoca Corp., Philadlphia, Pa., has announced two personnel changes. Harry F. Leeks has taken over the duties of credit manager at the Camden, N. J. branch. C. H. Jones has been assigned to cover the lower part of Delaware and the eastern shore of Maryland and Virginia.

American Tube Works, New York City, have appointed Sidney S. Pfluger as representative in the Philadelphia district. Mr. Pfluger's headquarters are at 2402 Market St. E. F. Keating, president, made this announcement.

Roots-Connersville Blower Corp., Connersville, Ind., has appointed a number of zone representatives as follows: E. E. Horn to cover the states of North and South Carolina, Georgia and Florida; Geo. P. Schumacker to be in charge of industrial pump distribution in the Cleveland, Ohio territory; Chester E. Wing to supervise turbine sales in adjacent counties of Ohio, Indiana and Kentucky; James T. Castle through his associate, D. J. McConnell to be in charge of turbine sales in western Pennsylvania and bordering counties of Ohio and West Virginia; and E. A. McCallum to be in charge of distribution in the northern half of California. J. B. Trotman, manager of the turbine pump division, made the announcement.

Personals

C. M. Lewis, for many years associated with the retail coal and domestic heating business, has been appointed western zone manager for the stoker division of the Whiting Corp. As zone representative for the company his territory will include the Rocky Mountain district, east as far as Omaha, Neb., and St. Joseph, Mo.

G. F. Ahlbrandt and **W. W. Lewis,** have been appointed assistant vice presidents of The American Rolling Mill Co., and H. M. Richards has been appointed manager of the sheet and strip sales division in changes in the sales division announced by W. W. Sebald, vice president in charge of commercial activities for the company.

J. G. Moravec

J. G. Moravec, sales engineer, has been placed in charge of the Moline, Ill., office of Penn Electric Switch Co., according to an announcement released by N. E. Jennison, assistant sales manager.

E. S. Crosby, vice president and general manager of Johns-Manville International Corp., has been appointed president.

Arthur C. Roy, associated with General Electric Co. for the past 21 years, has been appointed sales manager of Metropolitan New York for the Hoffman Specialty Co., Waterbury, Conn.

R. L. O'Brien, has been made executive vice president of Detroit Brass & Malleable Works, Detroit, Mich. Mr. O'Brien has been with the company for the past twenty years. He formerly was secretary of the company. **E. N. Reynolds** has been made secretary and **C. W. Watson** has become sales manager.

R. L. O'Brien

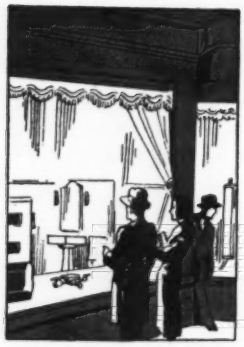
Business Changes and New Incorporations

The Mercoid Corp., Chicago, has opened a new office at 1035 Cathedral St., Baltimore, Md. John Jex, Jr., is manager of the new office. J. W. Owens, vice president, made the announcement.

Hallenscheid and McDonald, Los Angeles, Calif., have moved their Chicago offices, display room and warehouse from 1534 S. Western Ave. to larger quarters at 745-51 N. Wells St. The front of the building now is being remodeled into a modern display room.

Reading Foundry & Supply Co., moved into a new building at 3 N. Main St., Phoenixville, Pa. A showroom, office and warehouse are located in the building. Harry Wright is manager.

The Lincoln Electric Co., Cleveland, Ohio, has opened a new sales engineering office at Dayton, Ohio. The new office located at 1508 Watervliet Ave., will be in charge of R. P. Sharer.



Trade

News of . . . Men . . . Associations . . . Events . . .

President's Message

- *L. J. Kruse, president, National Assn. of Master Plumbers, makes his first statement since election to office—Covers various aspects of industry and its problems in his message*

L. J. Kruse, N. A. M. P. president, has just released the following statement, his first since election to office. President Kruse also has appointed his board of directors which will work with him during the ensuing year. The directors, their territories and various committee chairmen appear on following pages.

"People who aren't connected with the plumbing industry often wonder how it seems to prosper so well and do so much business with an almost complete absence of ballyhoo. Whenever one of these strangers talks to a member of the industry and asks why the industry prospers, the member of the industry, no matter what branch he belongs to, is always willing to take a bow. The manufacturer admits, with becoming modesty, that the manufacturers are the boys who make the wheels go round. If it happens to be a wholesaler addressed by this curious stranger, you can bet your life that the wholesaler will stick out his chest and take full credit for what the industry is doing. We don't have to say much about master plumbers, of course, because they are always glad to take a bow because they get so few opportunities to take them.

"But this question of who really handles the tough job of moving the plumbing industry forward is worthy of some consideration. Every one of the three branches of the industry feels that it is the motivating force; but we may as well review the situation and see whether or not the master plumber is doing his share.

"One could hardly believe that the consumer advertising plumbing manufacturers are doing contributes a great deal to the success of the industry, because when one compares the amount of consumer advertising done by plumbing manufacturers, with the amount of consumer advertising done by comparable industries, we are struck by the fact that our manufacturers appear well down the list of advertising expenditures as related to industry sales volume.

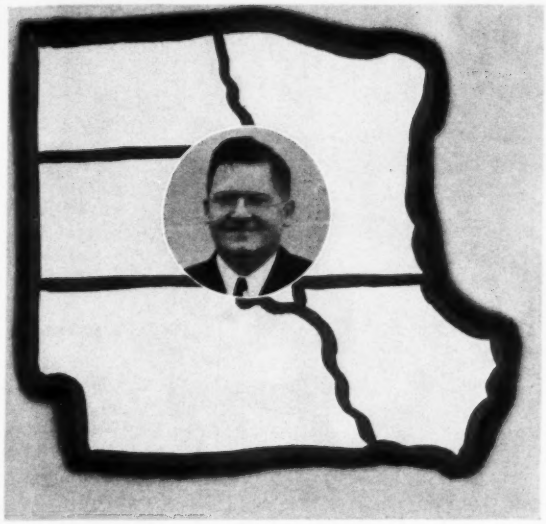
Consumer Ads

"It's been so long since anyone in the plumbing industry saw a consumer advertisement paid for by a wholesaler that we've almost forgotten that wholesalers ever advertised. So it's going to take an awful lot of arguing to convince anyone that the wholesaler does much to advance the industry as a whole through consumer advertising.

"Master plumbers are a little better than wholesalers when it comes to consumer advertising, but not a whole lot. You really can't blame the plumber for not doing a lot of advertising, because there isn't enough profit spread in the goods he handles to pay for it. As a matter of fact, if it weren't for the Plumbing and Heating Industries' Bureau and the publicity with which they deluge newspapers and magazines, very few people would ever read about plumbing or see any pictures of it, except those pictures which appear incidentally in connection with bathtub murders and delicious difficulties in boudoirs.

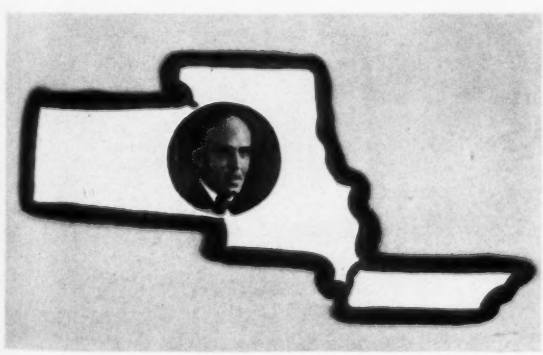
"The fact of the matter is—but few people are willing to admit it—that the master plumber is the man who introduces plumbing products to most of the ultimate consumers. Probably the other branches of the industry would deny this. It pleases them to picture the plumber as a spider in his web waiting for the consumer to come to his shop to demand plumbing products. But the master plumber cannot lurk in the dingy depths of his shop these days if he expects to make a living; so he's out in the highways and

L. J. Kruse, president, National Assn. of Master Plumbers



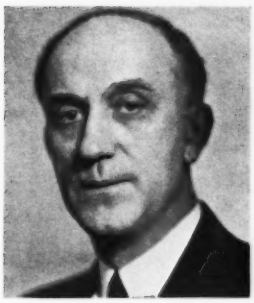
H. Merwin Porter, vice president—Minnesota, Iowa, Nebraska, North Dakota, South Dakota

Walter E. Eynon, director—Ohio, Kentucky, Michigan, West Virginia



Edward B. Monteath, director—Missouri, Kansas, Tennessee

Edmund P. Ingram, chairman, apprenticeship committee



John J. Calnan, chairman, Plumbing and Heating Industries Bureau

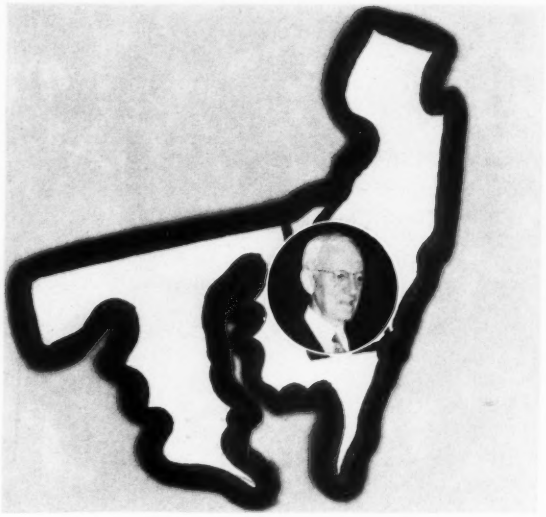
Herbert F. Weldin, chairman, conference committee

Charles M. Swinnerton, chairman, sanitary committee

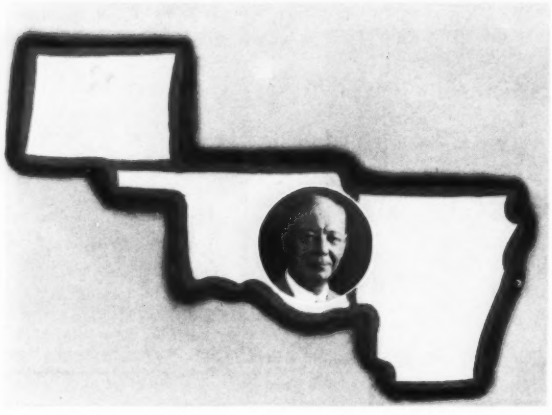
Philip S. Bailey, director—Maine, New Hampshire, Vermont, Massachusetts, Connecticut, Rhode Island

Richard J. Welch, chairman, scholarship committee

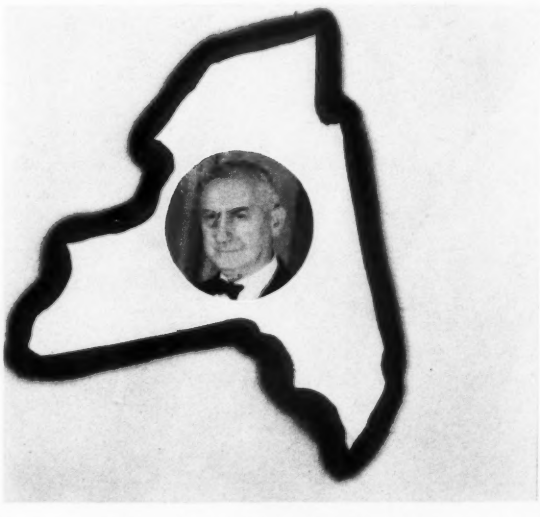
Jere L. Murphy, chairman, standardization committee



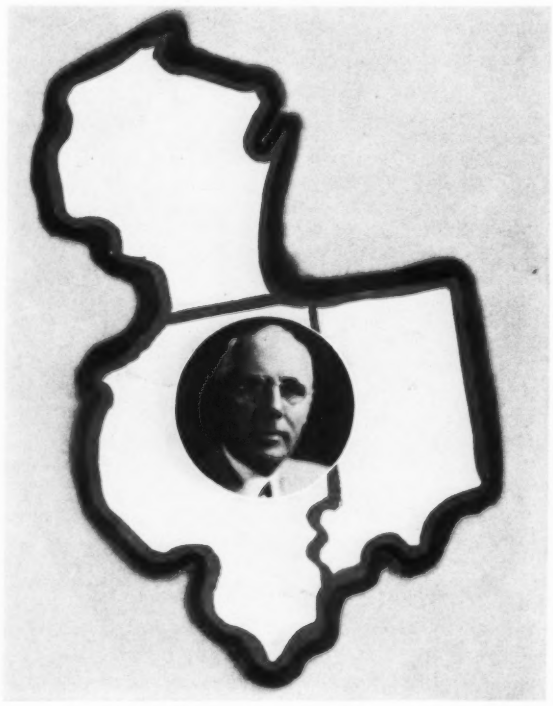
George H. Werner, director—New Jersey, Delaware, District of Columbia, Maryland



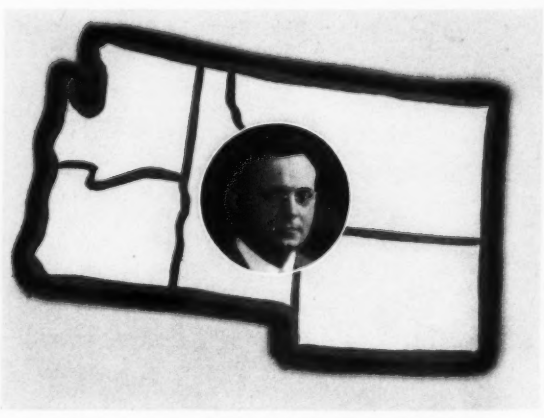
H. O. Green, treasurer—Oklahoma, Colorado, Arkansas



George W. Frank, director—New York



Thomas F. Hanley, Jr., director—Illinois, Wisconsin, Indiana



Walter J. Widmer, director—Washington, Montana, Oregon, Wyoming, Idaho

William J. Lang, chairman, research committee

byways talking plumbing to the home owner, if he wants to eat at all.

"According to whichever branch of the industry you are in, you have definite ideas as to the number of 'master plumbers' who are in business. Manufacturers like to use the figure of 50,000. Master plumbers like to use the figure of 25,000 to 30,000 as representing the number of qualified men actually engaged in the business of plumbing contracting. But whatever figure you choose, you must admit that from 25,000 to 50,000 men talking plumbing every day must be a mighty promotional force and a decided influence on public consciousness.

"To this number we must reluctantly add about 1,000 wholesaler's salesmen who are out ringing doorbells every day trying to sell material direct to home owners. So as a conservative estimate, we have at least 26,000 people talking to home owners every day about plumbing. This talk is advertising in its most effective form.

"The master plumbers pay for all this promotional effort, with the exception of the pay of the 1,000 wholesaler's salesmen referred to above. We believe, therefore, that it is a logical inference drawn from the facts when we state that the master plumbers contribute more for advertising and promotional effort on plumbing materials, by a great many times, than do the other two branches of the industry combined.

Protection

"Now we come to the second phase of the question of how our industry gets along as well as it does. The laws, ordinances and regulations relating to plumbing, general throughout the country, are the amazement and envy of other industries. These other industries would like to have similar 'protection' if you can call it that; but by reason of the nature of their products and services and by reason of a lack of organized effort to secure such protection, they are unable to do so.

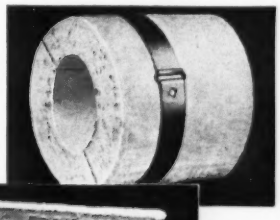
"But who gets these laws, ordinances and regulations? Nobody but the master plumber. If a wholesaler or a manufacturer is ever seen at a public hearing before a city council, he is there in opposition to an ordinance—

William A. Schneider, director—Pennsylvania

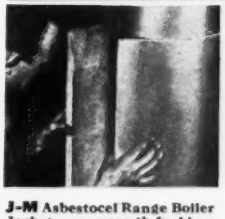
A Complete Line of Insulations for Plumbing and Heating Systems

backed by a Name known to Millions

Johns-Manville

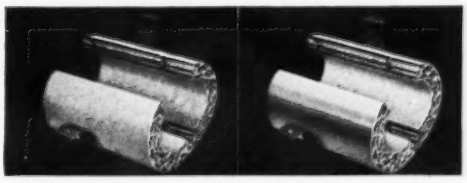


J-M 85% Magnesia. Highest insulating value. Neat appearance. Permanent. Costs more, but worth more. And a handsome profit for you.



J-M Asbestocel Range Boiler Jacket saves enough fuel in a few months to pay for itself. A sales story that lands many an extra $6 to $8 job.!

J-M New Pre-Shrunk Wool Felt. Furnished either with canvas or with a handsome aluminum finish that ends pasting, saves ⅓ on labor.



J-M Pre-Shrunk Asbestocel with new non-canvas finishes saves ⅓ labor cost. (Asbestos Paper Finish; also Aluminum Finish for de luxe jobs.)

SAVE MONEY for home owners and make an extra profit by including J-M Insulations in every new-house or modernization contract. We provide the right insulation for every job . . . and every one is a money-maker for you. Labor costs on installations are cut as much as ⅓. And they stay installed! No costly call-backs for servicing.

SOLD ONLY BY THE LEADING SUPPLY HOUSES

and very seldom, if ever, for it.

"It may be argued that the master plumber, in promoting the regulatory measures current in the plumbing industry, is selfish. This charge is true to a certain extent; but above and beyond his selfish economic interest in regulatory measures, is the master plumbers' universal desire to see the business of installing and selling plumbing materials elevated above the ethical and honesty level of the junk business.

Plumbing and Health

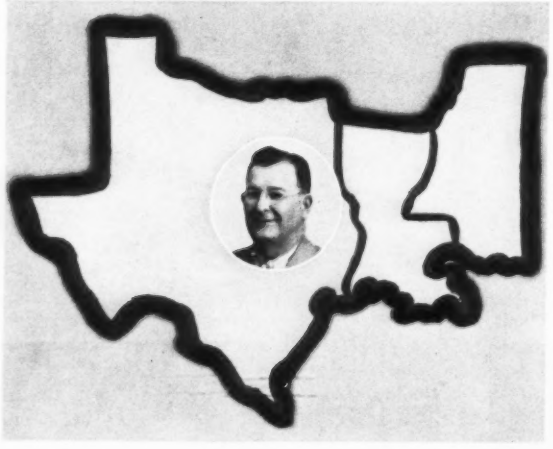
"Who is it that tries to get plumbing generally accepted as being an important factor either in the protection or destruction of public health? Who is constantly talking about good installations and good materials being conducive to health? Who is constantly warning the public against bad installations and bad materials being a contributing factor to public ill-health? Nobody but the master plumber!

"Now and then some manufacturer spends some money advertising the relationship between plumbing and health, but this is done in most instances more because of the agitation current in the ranks of the master plumbers than because of any deep conviction of the importance of the relationship.

"When any law or ordinance is introduced inimical to the plumbing industry—whether it be in some obscure hamlet, a state capitol or the National Capitol—who is it appears to fight? Nobody but the master plumber. Manufacturers' and wholesalers' representatives are never seen at such gatherings.

"Who is trying to develop workmen skilled in the installation of the products being put out by the manufacturers? Has anyone ever heard of a manufacturer interested in apprenticeship? Has anyone ever heard of a wholesaler interested in apprenticeship? The entire burden of training young men to enter the contracting branch of the industry and to imbue them with the standards needed for the type of work they perform, is carried on by master plumbers.

"Manufacturers and others were most generous in contributing to the scholarship fund maintained in the Carnegie Institute of Technology.



Felix H. Wahrmund, director—Texas, Louisiana, Mississippi

Howard L. Hopkins, director—Virginia, North Carolina, South Carolina

Freeman P. Moss, director—Florida, Georgia, Alabama

Loy F. Johnston, secretary—California, Utah, Nevada, Arizona, New Mexico

Every master plumber knows this and is appreciative of their generosity; but what we're talking about is the day-by-day training that goes on in hundreds of communities—a training that spells either the maintenance of high installation standards or their gradual degeneration into mere handywork.

"Manufacturers justly pride themselves on the quality of the products they make; but they are only too charmed to leave the training of the men who install those products—the men who, to a large degree determine consumer satisfaction—to the master plumber.

More to be Done

"Maybe we have established a fairly good case for the master plumber and have portrayed him in colors' calculated to dazzle the outsider viewing our industry. But be that as it may, there is a big job to be done yet in the industry and the speed with which the job is done depends on whether the master plumber is to carry the whole load or whether the other branches of the industry are to help him carry it. One thing is sure, the master plumber can't carry the load unless he's making some money and the lamentable fact is, whether there are 25,000 or 50,000 plumbers in business, that very few of them are making money."

Philadelphia Meeting

The regular meeting of the Philadelphia Master Plumbers Assn. was featured by a report delivered by Secretary Pflug-Felder on the address given by Congressman Patman at the recent N.A.M.P. convention in Atlantic City. A letter from George H. Werner, past president of the national association, was read thanking the association for the support given him during his term in office.

George Hicks, chairman of the sanitary committee, spoke briefly in praise of the work being done to enforce plumbing rules and regulations by the department of plumbing inspection. Another committee report was given by E. H. Rinear, Jr., chairman of the apprenticeship committee. He stated that plans for a vocational school in plumbing and heating would be submitted shortly to the association for its approval. The association approved the appointment of Philip Hering, Jr., as secretary of the association, effective January 1.

Mr. Hering reported as a committee of the Board of Plumbing Supervisors that new weights for soil pipe had been approved and endorsing the placement of manufacturers' name and weight of the pipe on the pipe. The board on motion agreed that weight on extra heavy pipe and fittings as well as pipe fittings shall be marked plainly for weight, size and name of the manufacturer.

Walter Raid, chairman of the educational committee, showed motion pictures of the Philadelphia group attending the national convention at Atlantic City. A motion was made and carried to hold a picnic July 24 at Rogersford. James McStay was made chairman.

To Lead Club

At the meeting of the board of directors of the Plumbing and Heating Club of San Francisco and the Bay Cities, held July 9, the following named officers were chosen to serve for the fiscal year 1937-38: William P. Scott, Jr., president, succeeding Ralph P. Olsen; Fred J. Chittenden, vice president; R. J. Fuite, treasurer; and Hal Sales, secretary.

The directing board also decided upon the time and place for the club's annual barbecue and golf tournament, which was set for August 19, at the Crystal Springs Country Club. Last year's event drew more than 60 golfers, while a total of 100 were accommodated at the barbecue. This year even a larger attendance is expected. According to a time-honored custom, Jack Forsythe will preside at the barbecue.

5 Star PROFIT MAKER

"ECONO-FLAME" Stingy with fuel . . generous with heat

BUILT BY BETHLEHEM "The best in oil heating first"

"CRADLED SILENCE" Patented live rubber cushioning

BURNS HEAVIER CHEAPER OIL With patented "Rotaire Diffuser"

"MONITOR MECHANISM" Banishes basement servicing forever

Exclusive features that are actual, demonstrable, money-saving advantages help sell Bethlehem-Doe Oil Burners . . keep them sold . . make Bethlehem-Doe today's *biggest net profit builder* for the burner dealer.

BETHLEHEM FOUNDRY & Machine Co., Bethlehem, Pa.

Calnan Reappointed

In recognition of the services he has rendered during the past few years as chairman of the Plumbing and Heating Industries Bureau, John J. Calnan of Chicago, has been reappointed by Pres. L. J. Kruse to represent again the National Assn. of Master Plumbers on the Bureau. As a past president of the National Assn. of Master Plumbers, and having been twice honored by the Bureau as its president, Mr. Calnan is familiar with the needs of the industry and the value of securing favorable newspaper publicity. He will continue to cooperate with Norman Radder, secretary and manager of the Bureau, in promoting through publicity the interests of the plumbing and heating industry.

Sewer Overloading

The Sanitary and Code Committee of the Master Plumbers Assn. of Dayton, Ohio, held a meeting July 6, for a discussion, to be followed by a plan of action, regarding the overloading of sanitary sewers with water drawn from wells by various firms who use the water for air conditioning and then pass it either through the sanitary sewers or, as it is suspected in some cases, through the fixtures where it is available for drinking. There is also the matter of cross connections possible in some buildings that should be eliminated.

Under the state law, the plumbing inspection department is under the jurisdiction of the Building Department of the city, while the Health Department is concerned with the inspection of public places and private buildings already existing, for their maintenance in a sanitary and safe condition. It is believed that the addition of a practical plumber to the staff of inspectors would greatly facilitate the work of inspection of the Health Department and insure greater sanitary safeguards for the public.

The sanitary and code committee is composed of Charles Vehorn, chairman; Ed. Fetzer; Louis Blank; Henry Saunders; Joseph Kiem; and Charles Stauffer.

Made Superintendent

Philip J. Thomas, appointed assistant superintendent of plumbing and drainage, Buffalo, N. Y., last April, has become acting superintendent since the death of John J. Boyne, Mr. Thomas has been very aggressive in making a drive against "bootleg" plumbers and has secured a number of convictions. Mr. Thomas formerly was in business for himself in Buffalo and also has been connected with George W. Drake, past national association president.

S. F. Picnic Plans

The San Francisco Master Plumbers Assn. has made plans to hold a picnic party at McNear's Beach near San Rafael, Calif., August 21. Roy Murray is in charge of arrangements. The picnic is planned for all association members in the San Francisco Bay district. A well rounded program of sports and entertainment has been arranged for the occasion.

Trailer Ordinance

Under an ordinance now being outlined by the Chicago City Council, trailers visiting the city will be controlled more or less by the Health Department. Major Joel I. Connolly, assistant to Dr. Bundesen, states that the use of trailers in the city in the past two years has become somewhat of a problem. While there is no desire to bar trailer tourists, Major Connolly states that they should be compelled to live up to certain minimum standards of sanitation if they intend to remain

The CADWELL No. 45
UNIT FOR HOT WATER HEATING SYSTEMS

A thoroughly reliable unit for hot water heating systems which is complete in a single unit. A system you may install in a short time with a minimum of labor. Simply connect supply line to boiler. No other connections necessary.

Here is a system which properly protects the boiler, keeps system balanced with water and controls expansion pressure. Pressure governing and relief feature has no springs . . . is governed entirely by physical laws . . . is responsive to slightest pressure differences and tests itself automatically. It cannot increase setting at any time. Has unique automatic filling arrangement.

No Greater Need

No greater need exists in the home today than the need for the well-being, the comfort, the *safety* of its occupants. And it's the heating man who recommends and installs CADWELL Products who meets this need most effectively, most *profitably*. Why not follow the example of so many other successful contractors . . . offer *your* customers the many health, comfort and safety advantages of CADWELL Products.

(At left) CADWELL No. 35 (DIAPHRAGM TYPE) PRESSURE AND VACUUM RELIEF VALVE. For use on range boilers or storage tanks where a temperature relief is not essential. Internal pressure governs operation. Pressing cap at top cleans and tests valve at same time.

(At right) CADWELL No. 25 TEMPERATURE — PRESSURE — VACUUM RELIEF VALVE. Also for use on range boilers or storage tanks and incorporates temperature control feature. Self-closing with phosphor bronze diaphragm and thermostatic member. Its one valve seat is governed by internal pressure. Safety authorities highly endorse it.

We are manufacturers of a complete line of heating specialties. These are available only through recognized wholesale channels. For further details concerning the products shown or other items in the line, consult your wholesaler or write direct.

The BEATON & CADWELL MFG. CO. Established 1894 NEW BRITAIN, CONN.

in Chicago beyond a short sightseeing visit. Under the proposed ordinance, those wishing to construct and operate trailer camps would be required to get a city license. The annual license fee would be $10 for a camp accommodating three trailers, with an additional fee of $4 for each additional trailer space. The draft of the ordinance includes requirements for sewage and garbage disposal, water supply, and minimum ground space for each trailer. A resident caretaker who would be held responsible for the registration of tourists and enforcement of the ordinance would be required to remain in the camp at all times.

Steamfitters Golf

The largest group for all time attended the annual golf outing of the Chicago Master Steamfitters' Assn. at the Kildeer Country Club on July 28. Between 150 and 160 members and guests were present. Arrangements were in charge of John H. Hanson, chairman of the golf committee.

The golf championship for the association was won by Herbert Lees. Prizes for second and third place were won by E. Mueller and B. A. Johnson, respectively. Jack Kiely's 79 won first low gross. Roy Getschow won the prize for the least number of putts. First prize in the blind bogey went to Charles Barrows. A total of 50 prizes were awarded.

Social Security

The Social Security Board has started action to bring about a more general filing of claims under the Federal old age benefits program. The Board recently mailed to its field offices, evidence that about 20,000 workers or their estates are eligible for benefit payments. Under Treasury requirements, an employer is obliged to make a report when one of his workers dies or reaches the age of 65. The Treasury recently transmitted an accumulation of such reports to the Social Security Board and the reports were, in turn, sent on to field representatives.

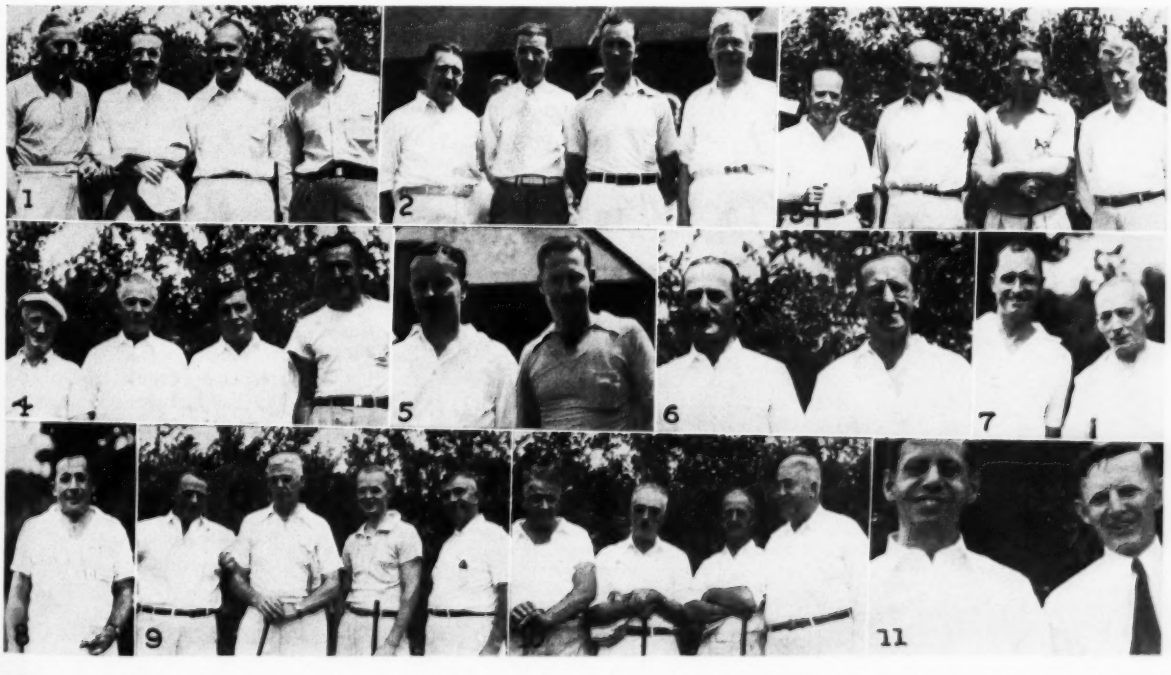
The number of claims which had been certified for payment up to the end of June was 4,419. Claims filed, but not already passed on, amount to 5,342. The number of claims that have been disallowed are 104. LeRoy Hodges, director of the Bureau of Old Age Benefits, has stated that if a claim is filed by a close relative of a worker who died before receiving his old age benefits and whose claim does not exceed $500, the claim will be considered for payment without awaiting formal administration of the estate which may be required by law. If such a claim is filed by some relative other than a spouse, child or parent, all possible assistance will be given to the claimant, but he will be advised that it is necessary to arrange for the legal administration of the estate before the claim can be paid.

Chicago Golf

The Chicago Plumbing Trades Golf Assn. held a golf tournament at the Bunker Hill Golf Club, July 15. Chicago master plumbers and supply men numbering 75 members and guests attended the occasion. The prizes were awarded on a blind bogey basis. Fred Runkhe, Elmer J. Sanger, H. Westerberg, won first, second and third prizes

The flight winners were as follows: G. Holm; E. Hawley; J. Madden; P. West; A. Nilson; M. Schuloff; W. Woolley; A. H. Eich; R. Lindblad; Harold Burr; R. J. Weber; H. Lietzow; A. C. Brown; C. W. Hildeman; D. Halley; H. Yelton; L. Roth; and H. Peterson.

Following the dinner, prizes were awarded by Geo. H. Matthews, chairman of the golf committee, who announced that in the next three tournaments to be held by the association, the prizes would be awarded on a handicap basis instead of a blind bogey. He also announced that the next tournament of



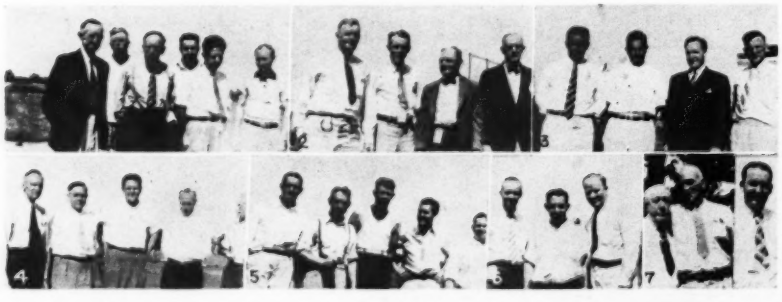
Taken at Steamfitters Golf Assn. meet. 1. E. T. Murphy, D. E. Perham, W. E. Lloyd and B. B. Dawes; 2. L. A. Wacholz, J. T. Urbain, R. Standaert and E. T. Emerson; 3. Elmer Rietz, Geo rge Dickerson, F. Abbott and William Spillane; 4. F. W. Lamb, C. E. Barrows, P. M. Doepel and A. B. Allen; 5. R. C. Kramer and Dwight Sutherlin; 6. Alex Byfield and Harry Himmelblau; 7. D. R. Haley and C. C. Ellis; 8. Ernie Ellis; 9. R. B. Reedy, Harry Allen, Fred Frantz and Otto Wurster; 10. L. U. Kemple, K. McKenzie, L. T. Braun and E. J. Claffey; 11. F. W. Fix and E. J. Pecher

the association would be held at Calumet Country Club on August 19. The tournaments of the master plumbers and supply men have been exceptionally well attended this season. Scores turned in were as follows:

F. Abbott	81	7	74
D. Anderson	104	23	81
T. Arenberg	139	50	89
W. Barr	108	22	86
J. Blair	115	34	81
H. Blake	90	15	75
H. Breetzke	95	18	77
A. C. Brown	106	28	78
P. J. Brown	105	25	80
E. Bunt	118	30	88
H. Burr	80	7	73
E. Carroll	95	25	70
Joe Carroll	95	17	78
H. Doyle	81	7	74
C. Dreier	105	27	78
E. Eckdahl	112	28	84
A. H. Eich	84	16	68
J. P. Eich	106	35	71
Frank Fabbri	99	15	84
James Fettes	111	22	89
A. Flodberg	115	30	85
John Guldan	93	15	78
D. Halley	97	27	70
Ed. Hawley	96	28	68
T. J. Heavey	97	10	87
Wm. Hildeman	100	29	71
G. Holm	93	18	75
T. Horan	80	7	73
C. Huestis	82	10	72
C. W. Jones	98	19	79
L. Katz	104	25	79
F. Knauss	117	35	82
J. C. Latimer	115	30	85
H. Lietzau	110	40	70
R. Lindblad	103	28	75
J. Madden	93	25	68
S. C. Maguire	99	20	79
T. W. Merryman	108	40	68
E. Mortimer	91	16	75
P. Mueller	112	26	86
P. Munn	99	28	71
C. Nilson	86	10	76
Al. Nilson	103	30	73
H. O'Callaghan	90	12	78
J. O'Neill	95	18	77
J. Paus	117	40	77
Clif Peterson	101	26	75
H. Peterson	90	15	75
R. Reedy	89	8	81
C. A. Reinking	88	10	78
E. Rietz	95	25	70
H. Robertson	102	24	78
C. Roth	85	6	79
L. Roth	84	8	76
F. Ruhnke	89	18	71
C. Rydell	90	8	82
E. J. Sanger	95	20	75
Geo. Sanger	87	20	67
H. Scheel	109	32	77
M. H. Schulhof	89	20	69
Ted Seabrooke	96	18	78
Phil Sieben	107	28	79
W. J. Spillane	91	16	75
J. Stayfield	92	7	85
J. Sterbenz	106	28	78
A. Stringer	105	25	80
W. Taylor	85	20	65
W. A. Taylor	95	12	83
Chas. Thumm	111	20	91
R. Weber	97	26	71
Porter West	88	15	73
M. Westerberg	91	15	76
W. Woolley	92	18	74
Harry Yelton	90	17	73

Trenton Picnic

The annual picnic of the Trenton, N. J., Master Plumbers Assn. was held at Washington Crossing, N. J., July 28 with over 125 in attendance. Among those in attendance were Edward Geyer, state president, and Lester Wake, field secretary. Representatives of the supply houses won the annual softball game between the association and the salesmen. A program of athletic events had been arranged. Prize winners in the various events were as follows: Daniel C. Black, Walter Schoeller, Tony Howarth and John Conard. The committee in charge was made up of John C. B. Wouters, chairman; John H. Conard; Arthur M. Schmidt; Daniel C. Black; and J. Miller Heidweiler. The association served refreshments throughout the day.



Taken at picnic of Trenton, N. J., association. 1. L. Youngman, secretary, North Bergen association; William W. Harms, state secretary; Ed. J. Geyer, state president; Lester Wake, field secretary; John Klimbach, president, Montclair association; D. C. Block, president, Trenton association; 2. J. L. Bennett, H. R. Stover, president, Warren-Bladerston; W. H. Wilkes; F. H. Fitzgeorge, Trenton plumbing inspector; 3. E. H. Swingler, Manufacturers Selling Co.; J. L. Wolfrum, I. X. L. Pump Mfg. Co.; W. A. Kelly, Manufacturers Selling Co.; B. P. Miles, Richardson and Boynton; 4 Ted Dodge, Chase Brass and Copper Co.; R. N. Bunkert, Trenton Brass and Machine Works; W. L. Schulte, vice president, Trenton Brass and Machine Works; John Black; H. W. Stouffer, Jenkins Bros.; 5. Chas. Whitehead, Public Service Co.; A. M. Howarth; Walter Schoeller; Chas. MacBeth, American Brass Co.; John H. Conard; 6. Al Wagner, Kohler Co.; Robert Crocker; H. Leitch, Delaware Valley Supply Co.; 7. Walter Fielder, Trenton Potteries; W. E. Bittner; 8. D. B. Stewart, vice president, Trenton association.

First Half Reviewed

The record made by American business in the first half of 1937 was one of continued recovery in the face of a number of such rather serious obstacles as strikes, floods, currency instability and a highly disturbing situation abroad, according to the Guaranty Trust Co. of New York in the current issue of *The Guaranty Survey.*

"The ability of trade and industry to make further gains against such a background," the report states, "illustrates the strength of the forces underlying the recovery movement and warrants the hope that the trend may be maintained during the second half of the year in spite of continuing difficulties.

"The average level of business in the first six months of this year was the highest for any similar period since the recovery began, although the rate of advance during the period was less rapid than in 1936."

Resources

According to a recent report of the National Resources Committee, the mineral industry, aided by technological advances, should be able to supply all the fuel and mineral raw material that the world can consume for the next ten years. Aside from the hazard of war, price levels are not greatly different from those which prevailed from 1920-1930. Predicted in the same report was that there will be numerous shifts in demands for, and price fluctuations in, individual minerals.

The report goes on to state that despite much recent progress, waste of coal, natural gas, petroleum and some of the minerals continues on an intolerable scale.

Progress Report

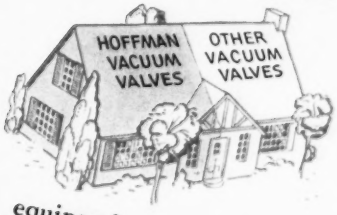
The Social Security Board has released a summary of progress up to July 1, 1937 which covers the status of the five programs administered by the Board. The summary shows that approximately 4,000,000 applications for social security accounts were received during the quarter ending June 30 and that by that time 29,954,821 account numbers had been assigned to applicants in all sections of the country.

During June, five plans for old age assistance, four for aid of the blind and six for aid to dependent children were approved. By June 30, 32 states had enacted laws or established plans for full participation in all four of the Social Security programs which require the approval of the Social Security Board for Federal fund grants.

A CUSTOMER SPEAKS FOR US

...TELLS OF HOFFMAN VACUUM VALVE SUPERIORITY IN SIDE-BY-SIDE COMPARISON*

A Chicago home owner writes: "This letter is a word of praise for Hoffman Vacuum Valves. We first equipped one side of our home with your valves and the other side with valves of another make. The radiators with Hoffman Valves heated quicker and stayed hot longer than the others, but we were able to obtain only about 5″ of vacuum.



THEN WE SWITCHED VALVES

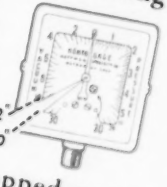
As a test, we interchanged the two kinds of valves, but the results were the same as before. The side equipped with Hoffman Valves heated more satisfactorily.

SO WE EQUIPPED THROUGHOUT WITH HOFFMAN VALVES

The improvement was immediate and amazing. On the first trial all radiators heated equally well and the system developed 20″ of vacuum.

HELD THE VACUUM FOR HOURS

At the beginning of the heating season, we had only an occasional fire in the boiler, but we noted that after heating the house and letting the fire die down, the gauge dropped only 8″, from 20″ of vacuum to 12″, *in 72 hours!*



This meant that it did not take more than 20 minutes to get up steam again when necessary. Needless to say, we appreciate the savings and added comfort we receive from our investment in Hoffman Vacuum Valves."

*Name furnished on request.

MORAL: Merely stamping "Vacuum" on a valve isn't a guarantee of vacuumizing economy. Be satisfied with nothing less than Double Air Locks — found only in Hoffman Vacuum Valves.

HOFFMAN SPECIALTY CO. INC., DEPT. RX-8, WATERBURY, CONN.

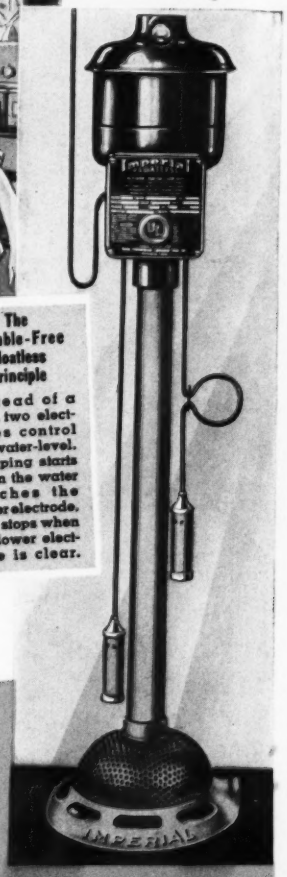
HOFFMAN VACUUM VALVES

Sold everywhere by leading wholesalers of Heating and Plumbing equipment

The Quality Line of HSCo *Heating Specialties*

There's going to be a lot of basements like this in your locality

LISTED AND APPROVED BY THE UNDERWRITERS' LABORATORIES



The Trouble-Free Floatless Principle

Instead of a float, two electrodes control the water-level. Pumping starts when the water reaches the upper electrode, and stops when the lower electrode is clear.

GO DOWN IN THE BASEMENT FOR PROFITS

Here is a part of Imperial's plan for helping you build up your "Basement Profits". This new bulletin offers some good suggestions on how to go after sump pump business, and the envelope stuffers will be imprinted for you as a part of the campaign.

WRITE FOR COMPLETE INFORMATION.

. . . Why not cash in on

IMPERIAL FLOATLESS SUMP PUMPS

BASEMENT protection has become more important each year . . . and adequate protection calls for an Imperial floatless electric sump pump.

In almost every locality you will find good sump pump prospects . . . automatic heating plants must be protected against any possibility of water rising to the height of the driving motors of the fuel burning equipment . . . basement recreation rooms must be protected against the cold dampness caused by seepage.

You can easily sell the value of Imperial protection for basements . . . and this protection means "Basement Profits" for you.

Write for complete details of the Imperial plan to help you get this business.

THE IMPERIAL BRASS MFG. CO.
1231 W. Harrison St., Chicago, Ill.

HERE'S THE LAST WORD IN SUMP PUMPS

FLOATLESS: Automatic starting and stopping of the Imperial electric sump pump. Requires no floats.

EXTRA-LOW PUMP DOWN: Less than 3 inches from the pitfloor . . . a great improvement over 12 inches, about the limit with float control. An even lower level is possible by means of an auxiliary switch.

SIMPLIFIED CLEANSING: No float to prevent raising the strainer to the top of the shaft for cleaning . . . a vital factor toward dependable action.

SUPERIOR MECHANICAL FEATURES: All bronze (rustless) construction . . . special shaft bearings, unfailing circuit breaker action and other features add greatly to durability and long service.

UNDERWRITERS APPROVED: The Imperial line has been approved by the National Board of Underwriters and it has already proved its dependability in thousands of installations in all parts of the country.

DEPENDABLE: Regardless of how long an Imperial sump pump has been idle, it will start up when water fills the sump. Debris, sediment, and corroded parts cannot affect the starting of this pump.

Six models for all sump depths..... **$39.50** up.

IMPERIAL *Floatless* *Electric Sump Pump*

A. S. H. V. E.

Practically every leading manufacturer of winter heating and summer air conditioning is represented among the list of exhibitors at the Fifth International Heating and Ventilating Exposition, according to a recent report. The exposition is to be held at the Grand Central Palace, New York City, January 24-28, 1938. Principal sections of the exposition will include steam, air and hot water heating; humidification and dehumidification; central heating; unit heating; fans, blowers and ventilating ducts; insulation; instruments; and tools and shop equipment.

Crusaders

The Crusaders of the New Jersey State Assn. of Master Plumbers visited the Master Plumbers Assn. of Elizabeth and vicinity on July 22. Delegations were on hand from the Oranges, Newark, Jersey City, Englewood and Westwood associations. In addition, representatives of manufacturers and wholesalers were present. Membership, distribution and methods of figuring jobs were three of the most important phases of activity during the evening. George Brenner, first vice president of the state association and chairman of the Crusaders, presided at the meeting assisted by George L. Bird, past national secretary.

Among the speakers were: Edward Geyer and William Harms, president and secretary, respectively of the state association; Herman Baumgartner, Newark; Ira Morris, executive secretary, Newark association; M. Albert Welt; Harry Kraus; Louis Maier, president, New Jersey Heating Assn.; Luke Devine, plumbing inspector, Elizabeth; C. Guy Stevens; Sam Cohen, Elizabeth Plumbing & Heating Supply Co.; J. C. Fullerton, Gas Equipment Corp.; Hugh Stephenson, Hart Oil Burner Co.; John Kleinhans, Rotoflame Oil Burner Co.; Lester Wake, state field man; Sam Cramer; and Joseph Shur board of health, Linden.

Philadelphia Picnic

The Philadelphia Master Plumbers Assn. held its annual picnic July 24 at Rogersford, Pa. James McStay was chairman of the arrangements committee, while Philip Hering, Jr., was in charge of games and athletic events. Others who served on various committees were Harry Stilwell, Sr., John Palfreyman, William Frey, Con Elsman, George Hicks and Harry Stilwell, Jr. In the annual baseball game between teams representing the association and plumbing and heating salesmen, the association team was victorious. Mrs. Frank Blazek won the rolling pin contest for women.

Third Picnic

The West Suburban Master Plumbers' Assn. held their third annual picnic at Kiwanis Park, Brookfield, Ill., on July 14, with a large attendance of their members and families, together with a number of supply house representatives and several of the state officers. A feature of the afternoon was an outdoor baseball game between teams composed of master plumbers and supply men, along with other athletic events for which attractive prizes were awarded. The ladies brought a basket lunch with them which was enjoyed in the late afternoon. Music and dancing furnished recreation during the evening. The association, of which Grover Scott is president and Alfred Miller, secretary, comprises the Master Plumbers of Oak Park, River Forest, La Grange, Brookfield and Forest Park.

Problem Discussion

The general committee of the Master Plumbers Assn. of Dayton, Ohio, recently held a meeting with local sources of supply for a discussion of conditions affecting the industry. The committee is under the chairmanship of Henry S. Blank, past state president. During the two hour meeting many problems were discussed. It was announced that this was the first of a series of similar meetings to be arranged by the committee. The association feels that such meetings will do much to eliminate and forestall misunderstandings as well as to develop a program of progressive action towards the improvement of conditions.

Outing Plans

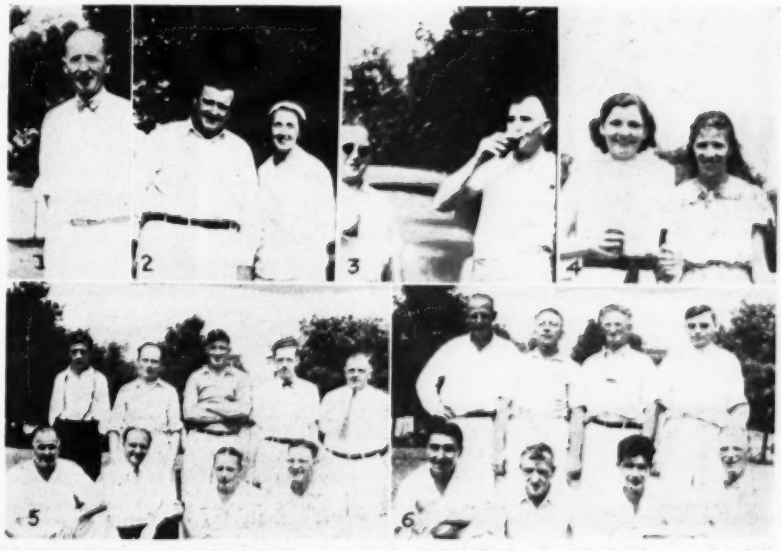
The annual outing of the Connecticut State Master Plumbers Assn. will be held at Silver Sands on the Sound, East Haven, Conn., August 19. In addition to a program of athletic events and games, both a luncheon and a dinner will be served. The committee in charge of the outing consists of James V. Ursini, Ralph Wilmot, A. J. Mongillo, A. E. Dibble, William Walsh and R. Forger.

A. S. S. E.

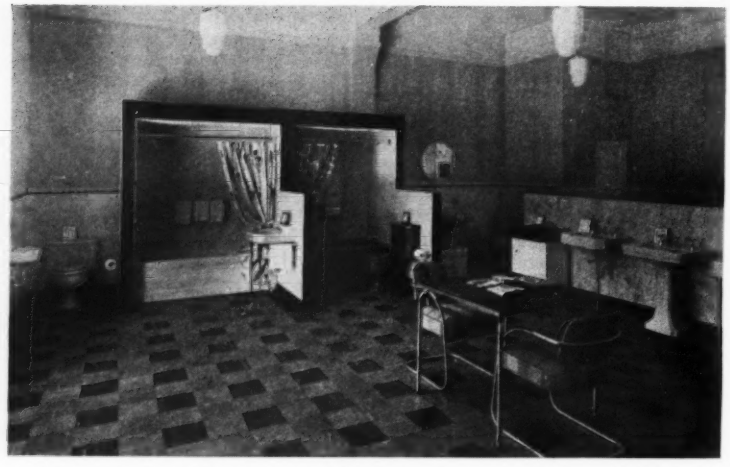
The thirty-second annual convention of the American Society of Sanitary Engineering will convene in Washington, D. C., September 7-10. Edwin W. Cade, president, recently sent out two letters urging attendance at the convention. One of these letters was addressed to city officials throughout the country.

Made Inspector

Howard E. Ricker has been appointed plumbing inspector of Dayton, Ohio, by City Manager Fred O. Eichelberger. He takes the place of A. F. Rodway who resigned because of ill health after serving for nine years. The office is under the department of service and buildings. Mr. Ricker will work under James P. Murray.



Taken at picnic of Philadephia association. 1. James McStay, chairman, entertainment committee; 2. Mr. and Mrs. William Boysen; 3. Otto Dietzman; Ed. Gannon; 4. Barbara Craige; Eleanor Bartie; 5. members of the association ball team; 6. members of the salesmen's ball team.



This is an interior view of the new showroom of the Peninsular Supply Co. in Miami, Fla. The opening of this new showroom recently was attended by a large delegation of contractor-dealers from the surrounding territory

Eastern Trade Golf

A regular meeting of the Eastern Trade Golf Assn. was held at Batusrol Golf Club, Springfield, N. J., July 22. Prize winners were as follows: William H. Murphy; Erwin H. Page; T. Arthur Johnson; Charles M. Hunt; M. F. Morris; Max Hermanns; William H. Driscoll; L. Power; J. G. McDonald; W. W. Hubbard; John C. Kjerner; A. P. Keasbey; J. S. Weaver; Herman Jacks; and W. T. Rogers. Other scores turned in:

Howard J. Rose	91	14	77
O. A. Lanchantin	90	13	77
J. F. Hyde	97	20	77
T. F. Kellogg	90	12	78
Geo. Allen, Jr.	102	24	78
R. Bontecou	94	15	79
A. F. Hinrichsen	96	17	79
T. W. Powers	90	10	80
Rhys Ryan	92	12	80
C. P. Gabosch	100	20	80
Al Engle	101	20	81
W. H. Carrier	105	24	81
J. A. McBride	87	5	82
R. G. Bookhout	102	20	82
E. Bauman	108	26	82
J. B. Garfield	89	6	83
R. S. Bruns, Jr.	94	11	83
T. Irby	96	13	83
R. W. Myers	96	13	83
F. A. Hubert	92	9	83
H. Townsend	97	14	83
C. S. Coleman	98	14	84
Earnest Williams	103	18	85
W. E. Heibel	130	45	85
L. W. Charlet	110	23	87
E. Thompson	112	25	87
R. L. Van Siclen	115	28	87
H. E. Mitchell	102	12	90
J. G. Gross	125	32	93

Oakland Elects

Robert D. Fearey will head the official family of the Oakland, Calif., Master Plumbers Assn. for the fiscal year, 1937-1938. He succeeds Robert Duncan, Jr. Other officers elected at the meeting on July 26 were W. S. Kewer, vice president and chairman of the board; H. S. Salisbury, sergeant at arms; E. M. Maloney, treasurer; and Fred H. Crane, secretary. The board of directors consists of Durant, Kennon, Minoggio, Pedersen, Sheridan, Cooke, Gottstein, Previati, Rouse and Duncan.

THE WAKEFIELD

★

Cuts Kitchen Labor

★

Wins the Women!

★

THE DISTINCTIVE ENAMELED WARE FOR THE DISCRIMINATING CUSTOMER

WOMEN today are no longer satisfied to contend with old-fashioned inconveniences in the home. They've been taught that housekeeping does not necessarily involve manual labor. As a consequence, they demand household furnishings . . . particularly for the kitchen . . . that have been designed to save steps and minimize labor. That's why plumbers everywhere are making the discovery that, to display and demonstrate the WAKEFIELD Sink and Cabinet, is to create in women the desire to *buy*. The WAKEFIELD was conceived with one basic idea in mind: to place the entire kitchen at the housewife's finger tips. It's an idea that's winning women and simplifying selling. Better investigate the WAKEFIELD and its profit-making possibilities.

THIS SHIELD IS YOUR PROTECTION

United States Sanitary Mfg. Co. GENERAL OFFICES: PITTSBURGH, PENNSYLVANIA

Picnic

• *One of most successful outings staged by North and West Master Plumbers Pleasure Club, July 21*

With an attendance of 500, including master plumbers, supply men and their families and friends, the annual picnic and outing of the North and West Side Master Plumbers Pleasure Club was held at Ehrhardts Grove, Park Ridge, Ill., July 21.

The majority who made the trip by automobile from Chicago brought lunch baskets along, and in the late afternoon enjoyed a meal under the shade trees. A feature of the afternoon's entertainment was a baseball contest between the master plumbers and the salesmen, which was won by the latter by a score of 10 to 9. Following this event, races for which attractive prizes were awarded were supervised by the entertainment committee. These included races for children under seven, for boys and girls, for young men and young ladies, for master plumbers' wives and special races for master plumbers and salesmen of various ages.

The race for master plumbers from 25 to 40 was won by A. A. Raffen; in the race for master plumbers over 40 years of age, the prize was won by Alfred Miller of Oak Park; and that for salesmen over 40, was won by W. Hilliard of Elmhurst, with second prize won by Fred Binder, veteran salesman of Weil-McLain.

Rrefreshments were distributed to the children. In the evening, the young folks as well as some of the older ones found enjoyment in the dance hall where orchestra music was provided for those who cared to dance. The arrangement committee was composed of the following: chairman, Paul Hamer; Al Grosch, president; Fred W. Binder, secretary; H. H. Diedesch, financial secretary; Henry Swade, treasurer; Wm. E. Bahn, Paul Grosse, Harold Stift, enry Skibbe, Fred Sorge E. C. Wagner and Walter Sievers.

St. Paul Picnic

A picnic for the St. Paul, Minn., members of the plumbing and heating industry was held at Lake Owasso, Minn., July 28. Approximately 300 association members, their families, jobbers, manufacturers and journeymen were on hand. Len Sofie was general chairman. Mrs. Arthur Nelson was in charge of the distribution of prizes. A number of athletic events were held. Refreshments were served during the course of the day.

A. C. Factors

The increasing use of air conditioning apparatus in the United States with a resulting demand for increasingly large quantities of water much of which when used once is discharged into sewage systems is a matter of growing concern to officials of many municipal governments, according to a study just made public by the Marketing Research Division, Bureau of Foreign and Domestic Commerce, Department of Commerce.

Installations of air conditioning units have increased approximately 1,400 per cent from 1933 to the end of 1936 and horsepower increased from 168,880 at the end of 1932 to 432,796 at the end of 1936, yet the trend of air conditioning sales continues upward more sharply than in any past year. Consequently the need for water for this purpose is a matter of serious consideration to manufacturers and city water authorities alike.

Thirty-eight of the ninety-two cities of 100,000 population or more reported upon in the study informed the Department of Commerce that steps had already been taken or were being considered to limit the use of water-using air conditioning equipment, this new study shows.

Because of the limited sewerage capacity in the loop district of Chicago the installation of water-using air conditioning plants which are not equipped with a cooling tower or otherwise equipped to obviate the necessity of discharging water into the sewerage system is being discouraged, it was stated.

Certain cities including Atlanta, Ga.; Chattanooga, Tenn.; Columbus, Ohio; Dallas, Tex.; St. Paul, Minn.; Scranton, Pa.; and South Bend, Ind., now are using the full capacity of their water systems and are not in a position to furnish additional water until the systems have been enlarged, according to the study.

Many other large cities throughout the United States are now using from 75 per cent to 90 per cent of available water capacity and could not readily furnish additional large quantities of water for purposes other than those now using water without arranging for increased capacity, it was pointed out by the study.

Obviously since demand for air conditioning equipment is a growing factor cities will be forced to provide more capacity.

This condition evidences a potential market for millions of dollars worth of water works equipment and sanitary works equipment as well as building and other materials, according to the Department of Commerce.

Obituaries

H. H. Dugdale

H. H. Dugdale

H. H. Dugdale, 46, vice president in charge of sales, American Gas Products Corp., died in New York City, July 19, after a short illness. A native of South Bend, Ind., Mr. Dugdale was sales manager of the company for ten years. He became vice presidnt in 1936. He entered the employ of A. H. Wolff Gas Radiator Co., predecessor of American Gas Products Corp., in 1924. He is survived by his wife and a sister.

P. C. McCommon

Paul C. McCommon, 41, Memphis, Tenn., contractor-dealer, died suddenly, July 16 in El Paso, Tex. Mr. McCommon had gone to El Paso on a vacation. A native of Memphis, Mr. McCommon had been engaged in the plumbing business in that city for the past 25 years. He is survived by his wife, a son and a brother.

Nathan Rosenzweig

Nathan Rosenzweig, 72, who has been in the plumbing business in Chicago for over 50 years, died July 3. He formerly conducted a plumbing shop on Ogden Avenue near Roosevelt Road, but had not been active in business for a number of years. He is survived by his widow, two sons and one daughter.

W. C. Stettinius

William C. Stettinius, 41, a director of Worthington Pump and Machinery Corp. and other organizations, died in Baltimore, Md., on July 20. He was the son of the late Edward R. Stettinius, former Assistant Secretary of War and partner of J. P. Morgan and Company. Surviving are his wife and four children.

T. P. Maloney

Timothy P. Maloney, 77, plumbing contractor-dealer of Kansas City, Mo., died at his home in that city recently. Mr. Maloney was a charter member of the local master plumbers association. He is survived by a son, three daughters, a brother and eleven grandchildren.

R. P. Fitzgerald

Richard P. Fitzgerald, 32, connected with the Spiral Boiler & Radiator Co., St. Paul, Minn., died suddenly July 22. Mr. Fitzgerald formerly was employed by Crane and Ordway in St. Paul and was for a year or more manager of the Minneapolis branch of Crane Co. He is survived by his widow, father, mother and one son.

F. D. Chase

Frank David Chase, well known Chicago architect and engineer, passed away suddenly at his home in Evanston, Ill., July 23. For a number of years, Mr. Chase was architect for the Western Electric Company and later served in the same capacity for the Illinois Central Railroad. He was a former president of the Western Society of Engineers and a member of the American Society of Civil Engineers. He is survived by his widow, a daughter and a brother.

John Gilbert

John Gilbert, 71, former head and founder of the John Gilbert and Sons, Memphis, Tenn. plumbing firm, died suddenly at his home in that city, July 31. Mr. Gilbert, a native of Cleveland, Ohio, came to Memphis when seven years old. He formerly was active in the Memphis Master Plumbers Assn. His wife, two sons, a daughter and three grandchildren survive.

New Contractors, Business Changes

Chicago, Ill.—E. J. Brierly has engaged in the plumbing and heating business at 2837 W. Madison St.

Los Angeles, Calif.—The plumbing firm of Henry Barnes & Co., 4957½ Hollywood Blvd. has been formed by Henry Barnes and John R. Moore.

San Francisco, Calif.—E. C. Bonin is engaging in the plumbing and heating business at 2556 San Pablo, East Bay.

Ashville, N. C.—H. W. Kindler & Co. has been chartered to engaged in the plumbing and heating business.

Chicago, Ill.—The Cicero Plumbing Co. recently moved into new and larger quarters at 5752 W. Division St.

Glendale, Calif.—James H. Johnson and E. P. Johnson have formed the plumbing firm of Johnson & Reeves at 221 W. Broadway.

Dallas, Tex.—The F. O. Royse Plumbing & Heating Co. has moved from 5423 Victor St. to 7314 Cherokee Trail.

Convention Dates

September 7-10.—A.S.S.E.—Thirty-second annual convention of the American Society of Sanitary Engineering to be held in Washington, D. C., with headquarters to be announced later.

October 12-13.—(tentative.)—PORCELAIN.—**Annual meeting of the Porcelain Enamel Institute to be held in Chicago.**

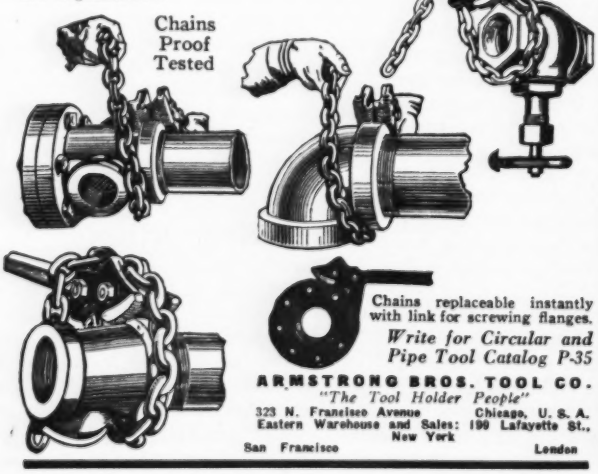
January 24-28.—A.S.H.V.E.—Exposition of the American Society of Heating and Ventilating Engineers, to be held at New York City, with headquarters at the Grand Central Palace.

Look for the Arm-and-Hammer

ARMSTRONG BROS.

The Ideal Wrench

Made exclusively by ARMSTRONG BROS. truly ideal for all around uses. Jaws have two biting surfaces. Straight for pipe, "V" for fittings, valves, and narrow or irregular surfaces—takes a 2-point hold on any surface. Extended radius (rocker shape) of jaws take up all chain slack. Jaws are drop-forged from special steel, are hardened, tempered and tested for wearing qualities. All parts are replaceable.



Chains replaceable instantly with link for screwing flanges.

Write for Circular and Pipe Tool Catalog P-35

ARMSTRONG BROS. TOOL CO.
"The Tool Holder People"
323 N. Francisco Avenue Chicago, U. S. A.
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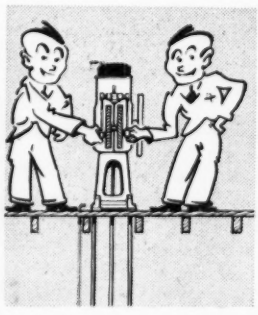
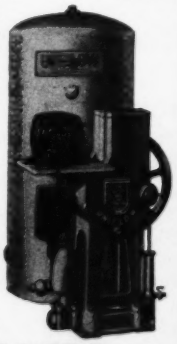


Double Spiral Cut Gears Divide the Load

Only Uniflow Deep Well Pumps use the more costly left and right spiral cut gears to equalize the load and multiply the force. Distributing the load this way lengthens the life of all moving parts — makes operation quiet. That's why Uniflows pump more water at less current consumption than any other deep well pump. Sell Uniflows on performance. Low prices get the business with a real profit for you.



Deep Well Systems from $104.00

Deep Well Pumps from $84.00

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SHALLOW WELL PUMPS
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SEPTIC TANKS
CELLAR DRAINERS
WATER SOFTENERS
KLARIFIERS
DOMESTIC AND COMMERCIAL REFRIGERATION
WATER COOLERS
MILK COOLERS
BOTTLE COOLERS
DRAUGHT BEER COOLERS
BEER PUMPS

UNIFLOW MFG. CO., ERIE, PA.

Women

Conducted by . . . Dorothy Edwards

Oakland Installs

• *Installation party of Oakland auxiliary held in Hotel Coit—Mrs. Picard becomes president*

Colorful and gay was the party marking the installation of officers by the Women's Auxiliary of the Oakland Master Plumbers Assn., when close to 30 members gathered in the banquet room of the Hotel Coit, on June 28. A delicious luncheon was served, the tables being profusely decorated with spring flowers.

With graciously appropriate remarks, Mrs. W. H. Picard assumed the presidency. Other new officers are: Mrs. Arthur Johnson, vice president; Mrs. N. J. Previati, treasurer; Mrs. deJ. E. Evans, secretary, Mrs. Jas. F. Mauzy, marshal. Upon retiring as organization head, Mrs. Mauzy presented gifts to each officer who had served with her. Acting as chairman of the day was Mrs. Previati, while the installing officer was Mrs. L. S. Jackson. Mrs. Jackson also heads the committee charged with visiting sick members.

Warm Welcome

Following a leave of absence occasioned by a prior claim on her time, Mrs. L. J. Kruse, whose husband was recently elected president of the National Assn. of Master Plumbers, was accorded a warm welcome as she was re-admitted to active participation in auxiliary affairs.

As an indication of its healthy growth, the Oakland organization has added five new names to its membership rolls during the past 60 days. July and August this year will be observed as vacation months.

N. Hudson Doings

Members of the North Hudson, N. J. women's auxiliary were entertained July 22 at the summer cottage of Mrs. Edward Bender, in Spring Valley, N. Y. Mrs. Louis Komoski was the winner of the peanut race, while Mrs. Anthony Orreechio won the ribbon race. Tables for bridge were provided. Swimming also was enjoyed during the afternoon. Later in the day the ladies were joined by their husbands. The men pitched horseshoes and played a game of soft ball. A spaghetti supper was served.

The auxiliary gave a surprise party for Mr. and Mrs. Henry Bunker, Jr. on June 30, their ninth wedding anniversary. The party was held at the home of Mrs. Clyde Cole, in Weehawken. A delicious supper, including a large wedding cake, was served. Dancing and entertainment followed.

Loan Fund Graduate

The Memorial Loan Fund, Women's Auxiliary, National Assn. of Master Plumbers, announces the graduation of Miss Margaret Williams from the University of Tampa, Tampa, Florida. Miss Williams was one of six honor pupils.

Cincinnati Dinner

A sumptuous chicken dinner was enjoyed by the members of the Cincinnati women's auxiliary, their husbands and friends, on June 16. It was served at the Cliff View House, North Bend, Ohio, which is situated high on a cliff which overlooks the beautiful Ohio river valley at that point.

The guests of honor were Mrs. Geo. Doench, newly elected national auxiliary president; and Miss Alma Niesen, her secretary. After dinner, cards were played until a late hour.

Lawn Party

Mrs. Jas. Lawton and Mrs. Jas. Porter were co-hostesses on July 14 at a lawn party given at the home of the president, Mrs. Jas. Porter, for the benefit of the Women's Auxiliary of the New Rochelle, N. Y. Assn. of Master Plumbers. More than 50 people were in attendance at the lawn party.

Mrs. Thomas Martin, treasurer of the auxiliary, who was in the hospital for several weeks following an operation, is reported to be again at her home and is doing nicely.

Mrs. Jacob Stockinger, Jr. and Mrs. Henri Billharz, president and secretary, of the New York auxiliary taken at the recent convention of the group

S. F. Luncheon

The June meeting of the San Francisco women's auxiliary marked the close of the 1936-37 calendar. Meetings will resume in September, with an unusually busy program in prospect. The June gathering was presided over by Mrs. Helen Welch, vice president, in the absence of the president, Mrs. Lena Sand. Mrs. Sand was unable to attend, due to a broken leg, but the hospital reported the patient was "doing well." The luncheon was well attended; the tables were profusely decorated with spring flowers. High scores at the bridge tables were turned in by Mrs. J. J. McLeod and Mrs. Bessie Crowley.

Picnic Planned

The plumbing and heating industries of Minneapolis will hold an all-day picnic at Eagle Lake, north of Robbinsdale, August 21, beginning at 10:00 A. M. There will be a ball game between the journeymen and the master plumbers' associations at eleven o'clock and one between the baseball leagues of the jobbing houses at two o'clock. Several surprise features and an oldtimers' prize waltz will take place in the evening.

Robert Rubinger is general picnic chairman. Gene Roberts, Ernest Schwitzke and H. W. Munro will have charge of the games and have arranged for many prizes. G. I. Miller and Roy Heverly are on the dance committee, while Mrs. Royal Berg is publicity chairman. A. J. Williams, A. E. Harroun, J. R. Brown, Oscar G. Johnson, Arthur Axsen, Roy West and Austie McInerney will assist on the committees. Assistants from the auxiliary to the heating and piping trades will be Mrs. A. J. Pieri, Mrs. Roy Haverly, Mrs. G. I. Miller, Mrs. Robert Rubinger and Mrs. Arthur Axsen, while Mrs. Otto T. Nelson, Mrs. Frank Lamson and Mrs. Royal Berg will represent the auxiliary to the Minneapolis Retail Plumbers' Assn.

Mrs. C. D. Kieser

Mrs. Clara A. Kieser, long active in women's organizations, died July 21 at her home, 285 Parker St., Newton Center, Mass., following a brief illness. She was in her sixty-ninth year.

She was born in Billerica, but had lived in Newton since early girlhood. She was a member of the Women's Auxiliary, Massachusetts Master Plumbers Assn. and was state president in 1930-31. She had been a member of the Massachusetts state board of directors since 1931, was past president of the Newton women's auxiliary and at the time of her death was serving as secretary of the latter organization. The former Miss Clara A. Stearns, she was married in 1892 to Charles D. Kieser, owner of a plumbing business in Newton Highlands for many years. She leaves no immediate relative other than her husband and an aunt.

Mrs. C. A. Kieser

Funeral services, which were held Sunday, July 25, were attended by more than 250 friends and members of the auxiliary and master plumbers' association. Burial was at Billerica, Mass.

Mrs. R. B. Finn

Mrs. Richard B. Finn, 74, passed away at her home in Chicago July 2 following a prolonged illness. She was the first president of the local women's auxiliary and was the widow of one of the pioneer master plumbers of Chicago. She is survived by a daughter, a son and a grandson.

Cleveland News

All but two members of the Cleveland women's auxiliary were present for the last meeting which was held on July 14. The meeting was opened by the president, Mrs. Edw. D. Maurer, with silent prayer for Mrs. Chas. F. Seifried, who passed away July 4.

Mrs. N. Gilman was elected first vice president to take the place of Mrs. Seifried, and Mrs. Robert Kiel was chosen as second vice president.

Many plans were discussed for the next state convention. Committees were appointed, and it is believed that the coming convention will be bigger and better than ever before.

After the business session, the members of the Cleveland Plumbing Contractors' Assn. joined the auxiliary members and a very enjoyable luncheon and refreshments were served.

Mrs. Chas. Seifried

Mrs. Charles F. Seifried of Cleveland died July 4 after a short illness. She was a charter member of the Cleveland Women's Auxiliary to the Master Plumbers' Assn. and at the time of her death was vice president of this group. Funeral services were conducted from the home and burial was at Knollwood cemetery.

Mrs. Charles Bishop

Mrs. Chas. H. Bishop, 46, passed away on June 19 after a lingering illness. She was the wife of Chas. H. Bishop of Chicago, trade paper advertising representative and writer. She is survived by her husband, a son and a daughter.

Picture taken at the recent central district meeting in Florida. Left to right: Miss Earnestine Rogers, Lakeland; Miss Griggs, Bradenton; Miss Kathleen Rogers, Lakeland; William Dunston, Lusburg; Mrs. Foster Fanning, Winter Park; Mrs. F. S. Inschoe, Miami; Mrs. Chester Armstrong, Bradenton; David Mayfield, past national director; and Mrs. Mabel McAndrews, historian, state auxiliary

Recognition

N.A.M.P. Publicity

- *Newspapers in every state carried articles in connection with the recent annual convention of the National Assn. of Master Plumbers at Atlantic City*

The Plumbing and Heating Industries Bureau recently has indicated that newspapers in each of the 48 states carried articles released by the Bureau in connection with the Fifty-Fifth Annual Convention of the National Assn. of Master Plumbers in Atlantic City. Five articles went out. Some of the newspapers which carried these articles were:

Evening Courier, Camden, N. J.; *News,* San Francisco, Calif; *Sun,* New York City; *Herald-Tribune,* New York City; *Bulletin,* Philadelphia, Pa.; *Times,* New York City; *News,* Newark, N. J.; *Journal,* Flint, Mich.; *Observer Dispatch,* Utica, N. Y.; *News,* Washington, D. C.; *World-Telegram,* New York City; *News Bee,* Toledo, Ohio; *American,* New York City; *Caller,* Corpus Christi, Tex.; *Union,* San Diego ,Calif.; *Journal,* Elizabeth, N. J.; *Evening Ledger,* Philadelphia, Pa.; *Courant,* Hartford, Conn.; *Item,* New Orleans, La.; *Telegram,* Worcester, Mass.; *News,* Detroit, Mich.; *Times,* Twin Falls, Idaho; *Times-Star,* Covington, Ky.; *Times Star,* Cincinnati, Ohio; *Herald-Express,* Los Angeles, Calif.; *Sun,* Norwich, N. Y.; *Enterprise,* High Point, N. C.; *News,* Newburgh, N. Y.; *Enquirer,* Cincinnati, Ohio; *Press,* Asbury Park, N. J.; *Star-Tribune,* Providence, R. I.; *Herald,* Grand Rapids, Mich.; and *Herald,* Washington, D. C.

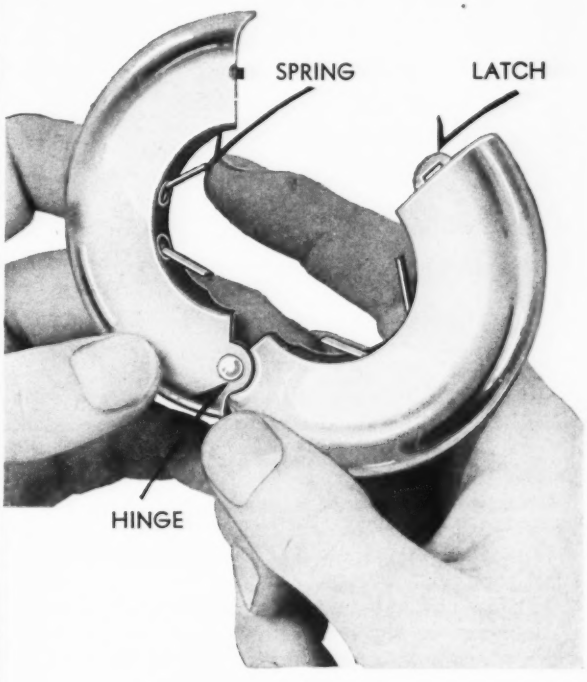
School Savings

- *School paper carries article on savings affected through modern firing methods*

Still another buying field which has been reached by the planned publicity program of the plumbing and heating industry is that of schools. Here again the story of the products and services which men of our industry have to sell was told in such a manner as to make further sales easier. The article which appeared in the August issue of *The American School Board Journal* is reprinted in part below.

Experience of the Rockford public schools with stoker firing since the first stoker was installed in 1931 has been so gratifying that all of the system's seventeen grade school buildings have now been equipped. Fuel savings ranging up to 31 per cent are disclosed by board of education records of coal consumption before and after stoker installations, but the most important advantages of letting machines instead of men fire the boilers do not appear in the record books. The great advantage of a stoker is not in the amount of money saved . . . but in the uniform temperature it assures in the classrooms."

1912 25TH ANNIVERSARY YEAR 1937



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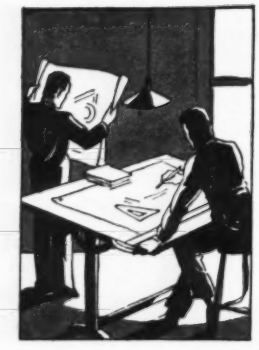

Questions

Theatre Cooling . . . Loop Connections . . . High Pressure Steam

Theatre Cooling

- *This reader wants to know how to air condition a small theater using ice as the medium for cooling*

To the Editor:

I want to air condition a small theatre using ice as a cooling medium. This theatre is 61 ft. long and 32 ft. wide as shown on sketch, Fig. 2. Can you give me some information on how many cubic feet of air will be required, size of fan, the maximum and ordinary amounts of refrigeration, and how many nozzles and gallons of water will have to be used? I should also like to know how this can be automatically controlled.

Md. E. G. R.

To the Reader:

Assuming that this theatre will have a maximum occupancy of about 300 persons the amount of refrigeration or ice required per hour will be a maximum of

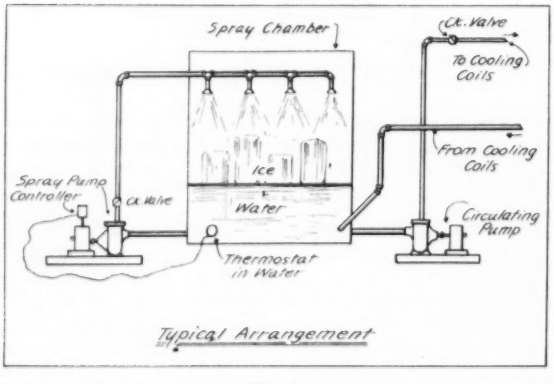

Fig. 1

about 1,500 lb. per hour and. on ordinary days will probably run about half of that. The fan will have to supply around 8,000 c.f.m. at ¾ in. to 1 in. static pressure; the amount of water to be circulated will approximate 30 g.p.m. and the number of nozzles will have to be such that they will cover the ice chamber and spray the water onto the ice in any location, but the total nozzle capacity should not exceed 30 g.p.m.

One arrangement which we saw recently returned all of the cooling water to the pan in the bottom of the ice chamber and used a separate pump to operate the spray nozzles. This pump was on thermostatic control, its operation being governed by the temperature of the water in the bottom of the spray chamber and operating only when this water went above 55 deg. Fahr. In this way the temperature of the cooling water was maintained at the temperature desired and the sprays were not operated when not required. A sketch of this is shown in Fig. 1.

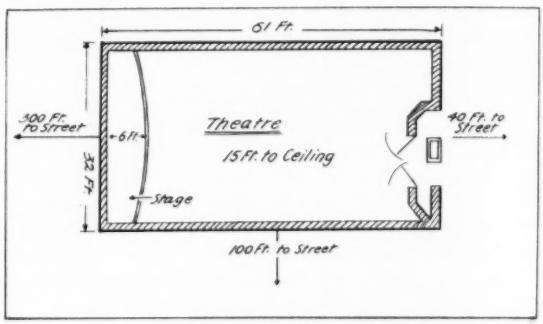

Fig. 2

Air Pollution

- *A solution is suggested for a condition where sewer gas was coming out of the house vents*

To the Editor:

In this locality, where the houses are all connected to the main sewer, we have always experienced some difficulty with sewer gas coming out of the vent stack and polluting the air in the vicinity of the house. Heretofore we have always been able to eliminate this by installing a running trap in the house sewer—no fresh air trap needed. However, in this particular case the running trap seems to do no good.

It is necessary here to use sump pumps set every mile or to raise the sewage in the main to a higher level and the odor is most noticeable soon after the pumps start working. It has been suggested that the pumps cause the trap to siphon, but this does not seem very plausible as the 12 in. main sewer is never completely filled. From the above information can you suggest any reason why this condition occurs?

Can you suggest a method of preventing the sewer gas from coming out of the vent stack so that we can avoid this kind of trouble in this type of installation?

N. M. R. R. A.

To the Reader:

It would seem that the starting of the pumps could not siphon out the house trap unless there is a tight end on the sewer and no way for air to enter as the

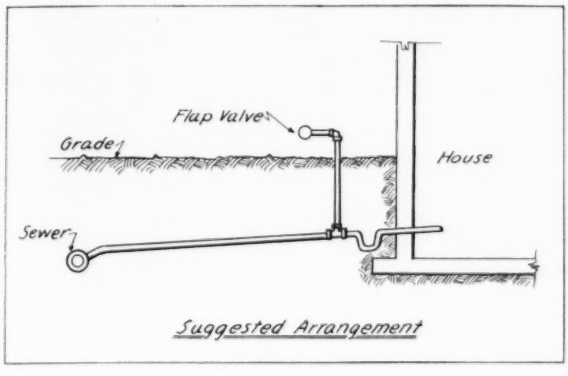

Fig. 3

sewage is withdrawn by the sump pumps. This may be overcome by venting the high end of the sewer, unless the sewer itself backs up so as to fill the lateral from the house to the sewer. In this event the sudden emptying of this lateral might at the same time siphon the house trap. There is a type of flap valve used on fresh air inlets for house traps which permits the air to enter the line but not to reverse the flow and come out of the line. This would prevent siphoning of the house trap as air would be admitted to the lateral pipe and destroy siphonic action.

HOUSE TRAP CONNECTION

If a pipe were connected to the discharge side of the house trap and provided with one of these flap valves at, or slightly above, the grade we believe that the difficulty would be overcome at least for this particular house. We also recommend the use of the regular fresh air inlet on the house side. Fig. 3 shows the arrangement which we would suggest.

Loop Connections

- *The cause and cure of water hammer in a boiler return is discussed here and an alternate connection is suggested for the benefit of this reader*

To the Editor:

We would appreciate receiving your comments on the trouble incurred by us recently as the result of the improper installation of a Hartford Loop return. We were called on a job where the original Loop had been installed correctly except that in place of the usual close

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nipple, as in Fig. 4, a pipe 18 in. long had been installed before dropping to the return on the floor. This caused a terrific hammer at the connection, which we cured by installing a close nipple where the 18 in. long pipe had been. The man in charge of this boiler wanted to know

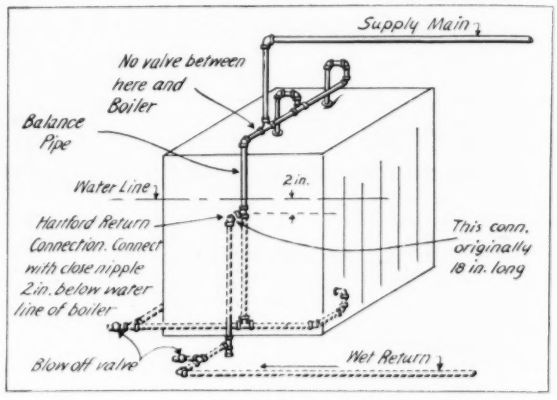

Supply Main
No valve between here and Boiler
Balance Pipe
Water Line
2 in.
Hartford Return Connection. Connect with close nipple 2 in. below water line of boiler
This conn. originally 18 in. long
Blow off valve
Wet Return

Fig. 4

the cause of the hammer in this original connection as he claimed that he would fill the boiler to the top of the gauge glass and still get this hammer at the connection.

We explained to him what we thought was the cause of the trouble, but as there is a difference of opinion as

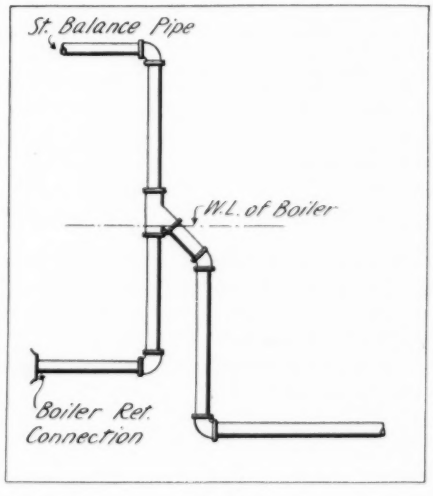


Fig. 5

to the factors operating to create this condition we would appreciate an expression of opinion from you as to the cause of this water hammer.

Ohio. N. L. H.

To the Reader:

The nipple at the top of the Hartford Loop should be as short as possible to avoid noise of an objectionable nature. With a long pipe a considerable space is provided above the water when this pipe is half filled by a fluctuation of the water line and when the steam from the bal-

ance pipe rushes into this space and contacts the colder water there is a steam hammer caused by the instantaneous condensation of the steam. This is prevented in the properly constructed Loop both by lowering the top of the Loop to 2 in. below the normal water line and by shortening the nipple as much as possible. Some people even advocate the use of an inverted Y instead of the tee connection as shown in Fig. 5.

Figuring Hot Water

• *The problem of selecting a steam boiler to be used to heat water is answered for the benefit of this reader*

To the Editor:

We are confronted with a problem and would like to have you help us out. We have been called upon to select a steam boiler to heat water and we would like to have your opinion as to how to figure the total load in sq. ft. of steam radiation to heat the following amount of water based on 100 deg. Fahr. rise in one and also three hours; one storage tank of 1,500 gal. capacity to be heated by an overhead indirect heater, and 1,200 gallons to be heated below the water line by an indirect tankless heater. This water is to supply 63 apartments and a Turkish bath.

Mass. S. B. T.

To the Reader:

Every pound of water heated 1 degree requires one Btu.; therefore, to heat the water in your tank in a three hour period will require that ⅓ of 1,500 gal. must be heated every hour and as there are 8⅓ lb. of water to a gallon, this means that the number of pounds to be heated will be

500 gal. × 8⅓ lb. or 4,166 lb.

To raise this water 100 degrees will require

4,166 lb. × 100 deg. Fahr. or 416,600 Btu.

and as there are 240 Btu. to an equivalent sq. ft. of steam radiation this would be equal to a boiler rating as follows

416,600 Btu./240 Btu. or 1,740 sq. ft.

If the tank is to be heated in one hour then the quantity of water to be heated per hour is

1,500 gal. × 8⅓ lb. or 12,500 lb.

and the Btu. required will be

12,500 lb. × 100 deg. Fahr. or 1,250,000 Btu.

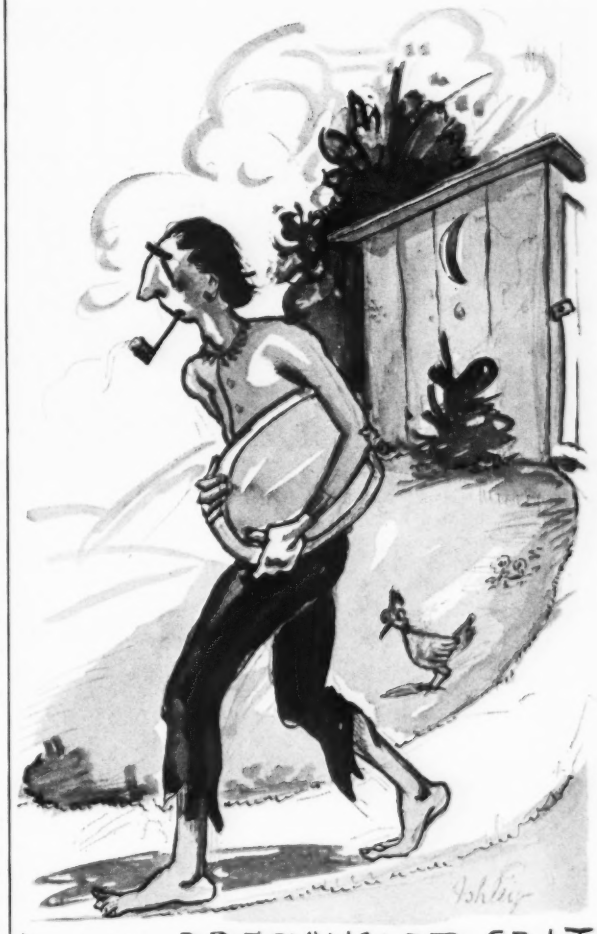
which is equivalent to

1,250,000/240 Btu. or 5,200 sq. ft. st. radiation.

It makes little difference how this heating is accomplished as long as the heat must be supplied by the boiler; a certain amount of fuel must be burned and this amount is the same as would be required if the steam radiator load were the amounts given.

The amount of water heated by the tankless heater must be added to the above as this is also an added tax on the boiler; if this 1,200 gal. is to be heated in one hour the sq. ft. of steam radiation which would be equivalent would be

$$\frac{1{,}200 \text{ gal.} \times 8\frac{1}{3} \text{ lb.} \times 100 \text{ deg. Fahr.}}{240 \text{ Btu.}} \text{ or } 4{,}167 \text{ sq. ft.}$$



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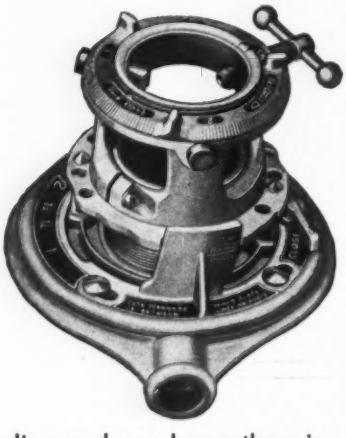

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but if this heating is done during a 3 hour period, and if the same amount of water is heated through the same temperature rise in this longer period the boiler load will be one-third as much or

4,167 sq. ft./3 or 1,389 sq. ft. of st. rad.

High Pressure Steam

• *A method whereby the reader may figure high pressure steam is suggested here*

To the Editor:

Could you give me information for figuring radiation using pipe coils when the steam pressure varies from 25 lb. to 75 lb. Sometimes the pressure goes to 100 lb., but as a rule the steam is carried at 75 lb. during the day and when the fire is banked for the night the pressure drops to approximately 25 lb. I would like to know how to figure radiation with an outside temperature of zero and varying indoor temperatures.

Pa. R. A. J.

To the Reader:

In determining the amount of pipe coil surface required for the ordinary heating installation where the steam will be at about 1 lb. gauge pressure, it is customary to allow 300 Btu. per sq. ft. of external pipe surface for coils on the side walls and 250 Btu. per sq. ft. if the coil is hung on the ceiling. Actually the pipe coil will radiate considerably more heat than this but these are the efficiencies generally used.

With steam at 1 lb. gauge the temperature in the coil is 215 deg. Fahr. and with the surrounding air at 70 deg. Fahr., the temperature difference between the coil and the room is 145 deg. Fahr. At 25 lb. gauge the temperature of the steam is 267 deg. Fahr. and the temperature difference between the room and the radiator will be increased to 197 deg. Fahr. and the increase in heat emission would be

197/145 or 1.36 times

which is an increase of some 36 per cent. Therefore, a coil on the side wall would be considered as giving off per sq. ft. of outside pipe surface

300 × 1.36 or 408 Btu.

while a ceiling coil would be considered as giving off

250 × 1.36 or 340 Btu.

For each 5 degrees that a room is to be kept below 70 deg. Fahr. the radiation required for 70 deg. Fahr. may be reduced 7 per cent.

Questions For READERS

Many answers were received in reply to the question which was asked in the June issue of Domestic Engineering. Almost without exception the answers were approximately like the one reproduced here. The question was:

What size of pipe will be required to supply 10 *water-*

closets with flush valves if the highest fixture is 30 ft. above the street main, the longest run is 147 ft. and the main pressure is 40 lb.?

With 10 flush valve waterclosets it is unlikely that more than two will ever be flushed simultaneously and the water closet flush valve at the maximum rate of flow does not exceed 50 g.p.m. under ordinary pressure. It would seem from this that the maximum flow to be carried by the pipe when two fixtures are flushed together would be around a rate of 100 g.p.m. although this flow might be only of a few seconds duration and only 15 gallons might be delivered to flush the two closets which are flushed simultaneously.

HOW MUCH PRESSURE

The next question is how much pressure do the conditions permit to be used up in pipe friction. The problem states that the length of the longest run is 147 ft. and if 50 per cent is added to this to allow for the added friction of the fittings, the total equivalent length of run will be

Actual length of pipe	147 ft.
Fitting allowance 50 per cent	73 ft.
Total e.l.r	220 ft.

now the highest fixture is 30 ft. above the street main and it is usually desired to have 15 lb. at the fixture so this leaves the pressure which may be used up in pipe friction as

40 lb.—(15 lb. plus 30 ft. $\times$ 0.43 lb.) or
40 lb.—(15 lb. plus 13 lb.) or
40 lb.—28 lb. or 12 lb. allowable total friction drop.

This 12 lb. allowable drop must be changed into drop per 100 ft. of e.l.r., by dividing by the e.l.r. and multiplying by 100 ft., which gives
12 lb./ 220 ft. e.l.r. $\times$ 100 ft. or 5 lb. plus per 100 ft. All that is necessary now is to refer to friction curves for the pressure drop of water flowing in pipe and to find out what size of pipe will give a drop of 5 lb. per 100 ft. of e.l.r. when there are 100 g.p.m. flowing in the pipe. This is ascertained to be 2½ in. pipe.

The pressure then works out:

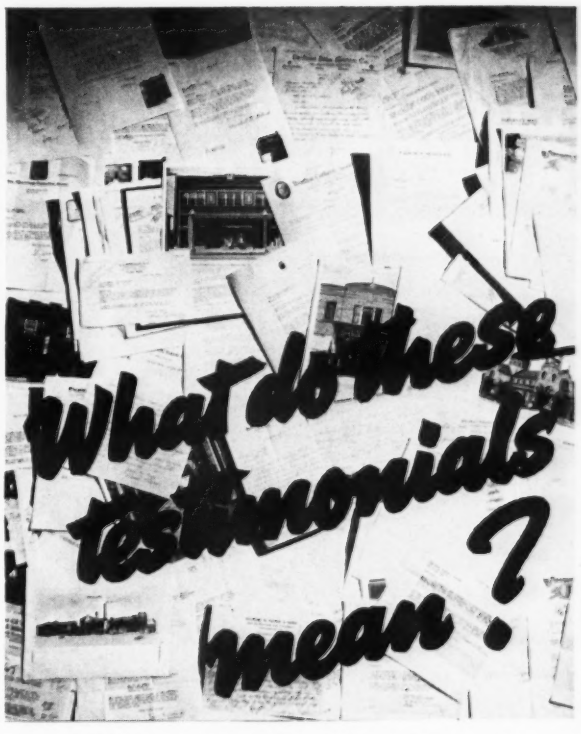
Maintained at highest fixtures	15 lb.
Lost in 30 ft. rise	13 lb.
Lost in 220 ft. e.l.r. at 5 lb.	11 lb.
Total pressure used	39 lb.
Pressure available in main	40 lb.
Surplus	1.0 lb.

This small amount of surplus is due to the pressure drop of 5 lb. per 100 feet of e.l.r. not being quite exact and actually the drop could have been a trifle more.

How Would You Answer This Question?

What should be the capacity of a septic tank for 20 persons?

With the spread of trailer camps and resorts, this question has a timely as well as practical bearing. An answer selected from among those sent in will be paid for and published.



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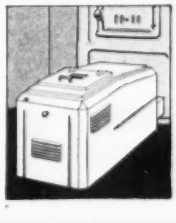

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NEW STANDARD JACKET — is also available. Covers boiler only.

Built by KOVEN, one of the best known fabricators of steel products in the East, the WATERFILM BOILER is made by skilled workmen and welded by A. S. M. E. approved welders. Each boiler is carefully tested upon completion. The boiler and generators are sturdily built of fire box steel which best withstands the effects of high temperature and corrosion.

The boilers are stronger—transfer heat more rapidly—are free from fracture caused by quick changes of temperature incident to automatic firing and hold a larger quantity of water that gives sustained heat. The generators are so constructed that they are 60% heavier than boiler tubes—can be easily removed or replaced—and are free from sediment and leaks.

The KOVEN WATERFILM BOILER is the latest development in heating boilers, designed to give the home owner (your customers) the best in heating satisfaction. Write for catalog describing in detail these distinct advantages.

ECONOMY QUICK HEAT
BEAUTY
COMPACTNESS CONSTRUCTION

Write at once for full particulars and catalog.

WATERFILM BOILERS, INC.
154 Ogden Ave. :: Jersey City, N. J.

THE FLASH BOILER STABILIZED

A KOVEN PRODUCT

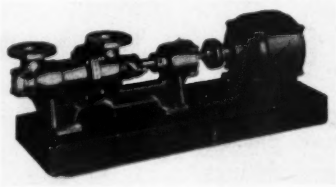
PRODUCTS *for* DEALERS

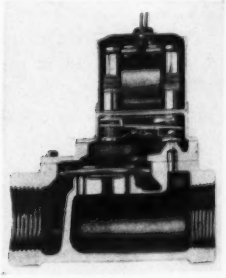
A New Pump

Designed for industrial pumping, with the feature that it is capable of pumping liquids in which solids from 35 to 50 per cent of the total volume are suspended, the new pump shown here has just been announced.

This is described as a positive displacement pump, which is valveless, non-pulsating, and self-priming to large suction depths. Its ability to handle solids in suspension makes it particularly adaptable to such applications as in mine pumping, etc. Five sizes are available, to pump from 3 to 175 g.p.m. at normal speeds. Some construction details of the line are as follows: the stator is of rubber, which is resistant to the effects of abrasives which may be in the solution being pumped; bronze or treated steel is used as standard metal in the rotor, but for specific applications, other inert metals may be obtained; the gland is so designed that grit and particles are kept away from the packing; the pump body consists of two parts, one carrying the drive shaft, connecting rod and packing gland, while the other contains the stator and rotor; pumps are direct connected to the motor as standard, but separate mounting of the pump may be obtained, in which case the base mounting is omitted and a mounting designed for the pump is included.

Robbins and Myers, Inc., Springfield, Ohio, announces this new pump.





Above, a New Pump

Right, New Gas Valve

Magnetic Gas Valve

A new magnetic gas valve designed for use with gas heating boilers, for domestic air conditioning and industrial applications has been announced recently. The accompanying illustration shows a standard valve.

The valve can also be used for such equipment as gas fired humidifying equipment, etc. The valve requires no attention, and operates quietly on low voltage—6 volts. The construction of the valve is such that should servicing be needed, the electrical mechanism and moving parts can be removed without taking the valve off the line. The operation of the valve is described as follows: when the control instrument, through the electromagnet, lifts the bleeder valve, the pressure above the disc is

released to the down stream side. The incoming gas then lifts the floating disc to the top of the chamber, and as long as the bleeder valve is open it is held up by the differential of pressure above and below the disc, by the impact pressure from the gas line, and by the wiping effect of the gas flowing around the edge of the floating disc. The main valve body is of bronze; the floating disc is fashioned of aluminum; and the valve seat and the bleeder valve are of leather which is lubricated to retain its resiliency. External parts of the unit are cadmium plated, and internal parts are electrically tinned.

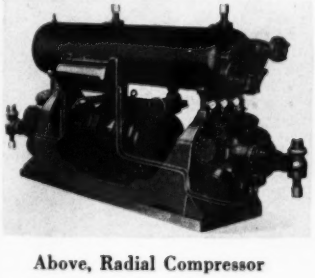
This magnetic gas valve is announced by Julien P. Friez & Sons, Inc., 4 N. Central Ave., Baltimore, Md.

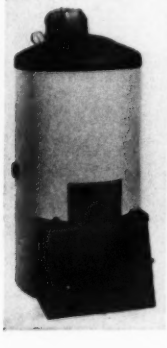
High Speed Compressors

New radial type compressors for commercial air conditioning installations have been designed and introduced on the market recently. The accompanying illustration shows the 75 h.p. model.

The new compressors are listed as presenting advantages in reliability of operation, light weight, and compact construction. They are available in capacities from 10 to 75 h.p. Features of the compressors are listed as follows: their light weight, compact size and freedom from vibration permit installation in practically any part of the building; the radial construction, incorporating a system of counterweighting, permits large capacity for the size and weight of the individual units; large valve areas combined with small lift results in quiet valve operation. An automatic capacity regulator keeps the unit balanced to the varying load requirement, and operating at peak efficiency for all loads; forced-feed lubrication is built into the unit; an automatic starting unloader permits starting without load; it uses freon as the refrigerant; and the motor is direct connected to the compressor.

Airtemp, Inc., Dayton, O., announces this new radial type compressor for air conditioning installations.





Above, Radial Compressor

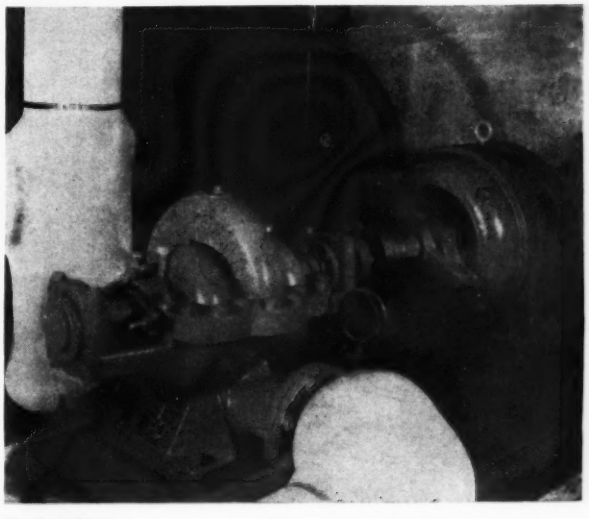
Right, Anthracite Boiler

Magazine Feed Anthracite Boiler

A gravity magazine feed boiler, which is automatic in action without any power driven mechanism, has been developed and introduced on the market recently. The boiler is shown in the accompanying illustration.

Some of the innovations which this boiler presents are:

YOU SELL CONFIDENCE WITH EVERY GARDNER-DENVER PUMP



Gardner-Denver Horizontally Split-Case Centrifugal Pump used for air conditioning in a large utility company.

● **Behind the many mechanical and hydraulic advantages of Gardner-Denver Centrifugal Pumps . . . behind their higher efficiency and greater power savings . . . stands BUYER CONFIDENCE assured by Gardner-Denver's reputation for skill in design and integrity in manufacture. Such confidence helps to make Gardner-Denver pumps easier to sell and more profitable for you. Write us for complete information.**

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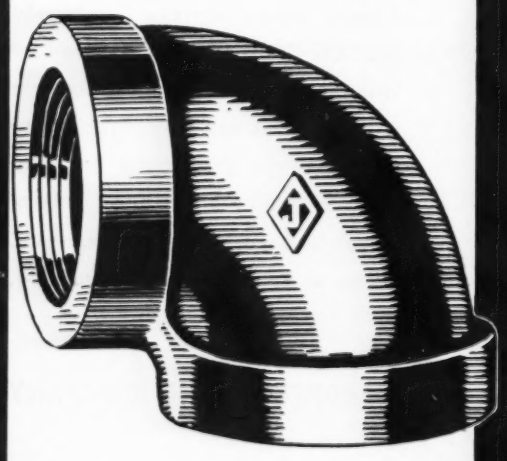
● 85 years ago Henri Giffard of France became famous when he propelled a dirigible balloon six miles by means of a 3-horse power steam engine. That same year, 1852, Jarecki produced its first fittings. Like aviation, Jarecki has grown in the succeeding years, but we have never changed our belief that EXTRA DEPENDABILITY in fittings means EXTRA VALUE to users.

JARECKI FITTINGS



JARECKI MANUFACTURING CO., Erie, Pa.

one charge of chestnut coal will last from 24 to 48 hours, and as long as 3 or 4 days in mild weather; ordinary flue passes are eliminated to gain an increased area for heat absorption by direct radiation; air is introduced from the sides of the grates, flowing across the spiral cone-shaped grates; the rotation of the grate throws ashes off at the rim, from which they fall into a removable ash receiver which is placed in the ash pit. The boiler has a rating of 190 sq. ft. for steam, and 300 sq. ft. for hot water. Coal in this boiler is fed through a feed door at the top of the boiler.

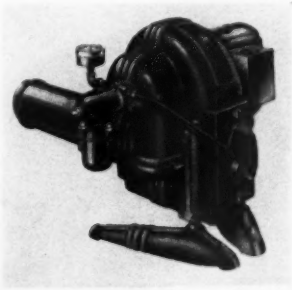
This boiler was developed by Anthracite Industries, Inc., through cooperation of Burnham Boiler Corp., Irvington, N. Y., and is marketed by the latter company.

New Conversion Type Oil Burner

A new gun type conversion oil burner which is designed for use in converting heating plants into oil fired assemblies has been announced on the market. It is shown in the accompanying illustration.

This burner is of the pressure atomizing, continuous ignition type. It is housed in a single casting, and has only one moving part, the fan being powered from a single shaft. Air delivery and mixture, it is indicated, are controlled without combustion noise. Air movement is such that the flame is in complete suspension, enabling the boiler to extract the maximum amount of heat. The electrodes in this burner are so located that they are not in the direct path of the oil mist flow, and as a consequence, cannot become loaded with carbon or become fouled. Each model has, at the front of the chassis, an observation port for convenient observation of combustion and ignition. Controls listed as standard with the burner include a thermostat, a combustion control, and a choice of a steam limit control, water limit control or air limit control. The burner has a capacity of from 1 to 4½ gal. per hour. It is finished in green.

Crane Co., Chicago, Ill., announces this new conversion type oil burner.



Above, Conversion Oil Burner
Right, Universal Chain Wrench

New Universal Chain Wrench

Shown in the accompanying illustration is a new universal chain wrench which is designed particularly for use on pipes which are behind sinks, closets, boilers, or in some other inaccessible location. For open work it gives the advantage of greater speed.

The wrench is manufactured in one size, but the chain, which is 15¾ in. in length, makes it adaptable for any size from ½ in. to 4½ in. A 12 in. handle, which is drop-forged from a chrome-molybdenum steel alloy, provides sufficient leverage. It is indicated that the handle is heat treated to withstand any strain which can be put on it during ordinary use. The tool, including the chain, has a gray satin finish chromium plating.

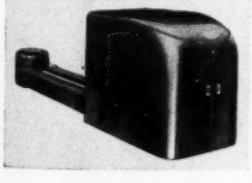
This chain wrench is manufactured by the Owatonna Tool Co., Owatonna, Minn.

Automatic Coal Stoker

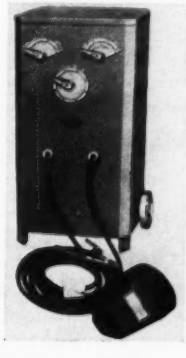
The automatic coal stoker shown here has been introduced on the market recently. It embodies several features of construction which are designed to keep the temperature of the home within one degree.

It is of the underfeed type, and is made in sizes for installations from the domestic heating type to large heating plants. Coal feed capacities range up to 750 lb. per hour for the large commercial model. An automatic air volume regulator on the stoker is designed to provide maximum burning efficiency with simple regulation. Dampers in the fan inlet are actuated by the effect of the velocity in the air tube. When the volume of the fire increases above the condition desired, the air supply to the fan is cut down. Conversely, when the fire bed thickens and gives more resistance to the air flow, the damper is opened sufficiently to maintain the air flow at its original volume. The retort is built up of sectional tuyeres. The hopper is manufactured of rust and abrasion resisting alloy steel. All coal tubes are made of corrosion resisting steel. This stoker, as marketed, is supplied with automatic controls.

Winkler Manufacturing Corporation, Lebanon, Ind., announces this new coal stoker.



Above, New Stoker



Right, A. C. Welder

Alternating Current Welder

Featuring separate voltage and amperage controls, which will enable the operator to select the proper voltage for the amperage used on the particular job, the new arc welder shown in the accompanying illustration has been introduced on the market recently.

This welder is built in three sizes with current range from 10 amperes to maximum output, that enables the welder to weld sheet metal or heavy metal. The separate control for amperage and voltage furnishes a large scope

"WELL-FROM ONE WHOLESALER TO ANOTHER

We find that—

KAINER CIRCULATING SYSTEMS

Are Steadily Preferred By HEATING CONTRACTORS for their

Hot Water Jobs"

THE REASONS ARE SIMPLE!

They're Mighty Dependable

1. Measured by any standard, Kainer Circulating Systems conform to the most exacting demand for automatic hot water heating equipment.

Kainer Circulators . . . reliable, quiet, efficient; Kainer Governors . . . sturdy, dependable; Kainer Circulation Controls and Accessories . . . all outstanding equipment, all pulling together as one coordinate system, each unit doing the job it is supposed to do . . . JUST AS YOU PLANNED.

Profits? Sure!—Cooperation too!

2. That is the answer to the success so many contractors have found in installing Kainer Circulating Systems . . . knowing beforehand that each complete system—each unit—measures up to a standard. When you leave a job knowing THAT, it means a good clean profit and another satisfied customer.

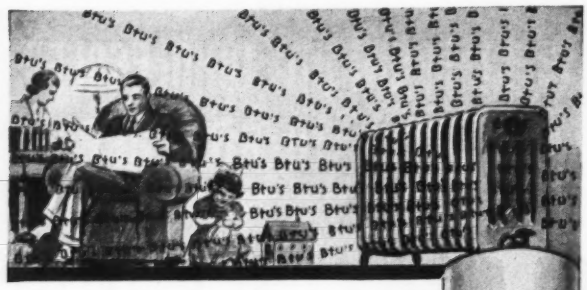
Sales Policy

3. AND REMEMBER THIS . . . Kainer Circulating Systems are backed by a sales policy that gives you COMPLETE trade protection . . . a line of hot water heating equipment that reaches the consumer ONLY through the plumbing and heating contractor.

For your protection, and for your success in selling automatic heat, INSIST on Kainer. Your local wholesaler will gladly supply your needs.

Write for Bulletin No. 66 Today!

KAINER & COMPANY
761 MATHER ST. CHICAGO ILL.



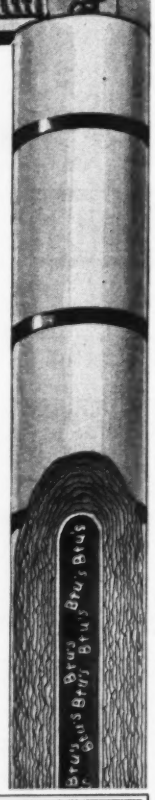
...WHERE ALL GOOD Btu's GO *if*...

All good Btu's go to work if you tell and sell home owners and prospective home builders the importance of Ruberoid-Watson Insulating Products.

Show property owners how your contract price for Ruberoid-Watson Insulating Products is not an expense, but actually pays yearly dividends in reducing fuel costs, providing extra comforts, etc.

Remember, too, you can custom-build any job, for the Ruberoid-Watson Line is complete. There are asbestos pipe coverings to meet various temperatures and pressures, asbestos block, board and paper specialties, plastic insulations, 85% magnesia, and rock wool to meet any problem.

Learn about the profit-building merchandising plan behind the Ruberoid-Watson line. There is a real proposition open in many communities for the better type of jobber or dealer. Investigate. Mail the coupon.



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500 Fifth Ave., New York City.

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of current settings. The three dials on the front of the cabinet are plainly marked. Portability is built into these welders by the wheels and handle with which each model is equipped. All three sizes have the same dimensions, the only variation being in capacity and weight, which varies from 235 to 350 lb.

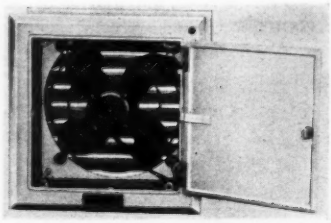
Miller Electric & Manufacturing Co., Appleton, Wis., is the manufacturer of this new alternating current welding apparatus.

Wall Box Type Ventilator

The wall box type ventilator shown here has been introduced on the market just recently. It is designed for kitchens, to exhaust heat and cooking odors, and for other rooms of the building, where its application may be to exhaust heat, steam, tobacco smoke, or any odors in the room.

The ventilator has a capacity of 875 c.f.m. The ventilator, in its metal cabinet, is designed for permanent installation in the wall of the room. Models are available, however, which have portable metal panels and which may be installed in windows or transoms. The fan is of 12 in. size. Features of the construction of the ventilator unit include wool packed bearings and steel construction of the wall box and mounting frame. The fan is finished in black lacquer, and the box and mounting frame in gray enamel.

This wall type ventilator is manufactured by the Emerson Electric Co., 1824 Washington Ave., St. Louis, Mo.



Above, Wall Box Ventilator
Right, New Anthracite Boiler

Steel Boiler for Anthracite Fuel

A new steel boiler has been designed for burning anthracite fuel automatically, with a gravity type feed. The illustration above shows the new boiler.

A feature of this boiler is the fact that it is provided with a magazine which holds a supply of coal sufficient for from 24 to 48 hours, and it is indicated further, one filling will last as long as 3 to 4 days in mild weather. The boiler is manufactured in one size, for 300 sq. ft. of standing water radiation. Copper bearing steel is used in the construction of the boiler, which is equipped with a room thermostat, an electric damper motor, a thermometer, an altitude gauge and a relief valve. Some of the features of the boiler are as follows: the fuel is placed in the magazine, and flows by gravity into the combustion chamber; water is heated by radiation in the sides of the boiler and in the smoke pipe, which is

water jacketed; the air supply enters through the draft door, flows around an internal collar and creates a draft horizontally across the fuel bed; the spiral grate is cone shaped, revolves easily upon turning the crank, and deposits ashes in a removable container in the ash pit.

This boiler was developed by Anthracite Industries, Inc., through cooperation of Fitzgibbons Boiler Co., Inc., 101 Park Ave., New York, N. Y., and is marketed by the latter company.

New Oil Burner

Two new oil burners, which present capacities of from 1 to 3 gal. per hour for the smaller burner and from 1 to 5½ gal. per hour for the larger burner, have been introduced on the market just recently. The accompanying illustration shows one of the burners.

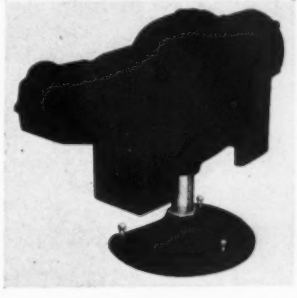
These burners feature what is termed an elevated contraflow, which is designed to give economical operation through low fuel consumption. The air distribution, with its cylindrical outward circular motion, provides a flame which is shaped to fit the combustion chamber. The burner is equipped with a unit which is composed of a fuel pump, strainer, cut-off and regulating valve. A mid-point ground ignition transformer is part of the burner. The installation of this burner is such that the power unit rests on composition cushions and is disconnected from the heating plant. This method provides a floating power arrangement, eliminating vibration. This burner is designed for burning No. 3 fuel oil. It is finished in two shades of brown.

The Round Oak Co., Dowagiac, Mich., manufactures this new oil burner.

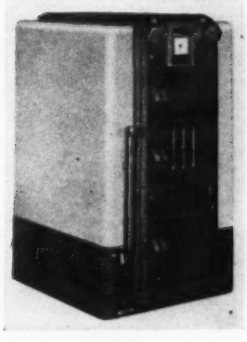
New Residential Heating Boiler

Designed for hand firing or automatic heating with coal or oil, the residential heating boiler shown in the illustration above has been introduced on the market recently.

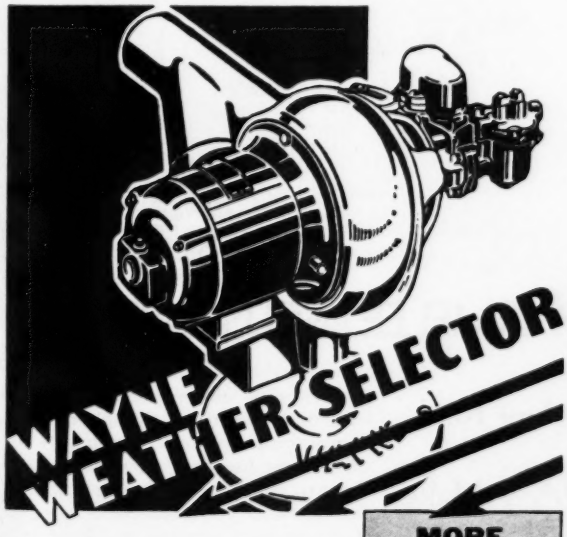
Load rating for the hand fired types ranges from 225 to 750 sq. ft. for steam, and from 360 to 1,200 sq. ft. for water. Fire travel is four times the length of the boiler, and in addition, numerous extended fingers from the sides of the water legs and along the flue ways add heating surface. Among the other features shown in this line of boilers are the following: a foot pedal is installed for opening the ashpit door; control knobs on the front of the boiler adjust the damper regulator and the smokehead damper; the check draft door on the smokehood is closed only by mechanical means and



New Oil Burner Announced Recently



Residential Heating Boiler



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NEEDS NO DOCTORING!

For Your Protection this product is sold only through recognized plumbing supply jobbers—who in turn loyally support master plumbers.

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CHICAGO · JOPLIN · CINCINNATI

EAGLE wiping solder

opens automatically by gravity, in case a chain should be severed. The boilers for stoker or oil firing are designed to permit installations of two sizes of storage type and two sizes of tankless water heaters, and tappings are placed on the rear section for all controls.

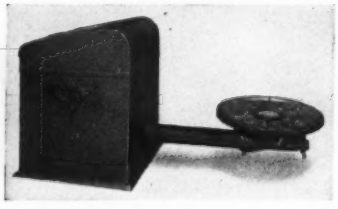
This line of boilers is announced by the National Radiator Co., Johnstown, Pa.

New Natural Draft Stoker

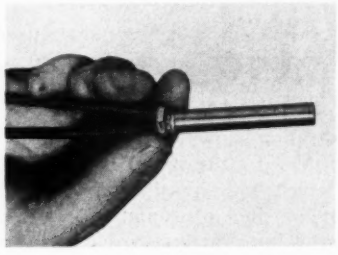
A new stoker which is operated with natural draft has been introduced on the market. It is shown in the illustration below.

It is indicated that in the operation of this stoker, as the thermostat calls for heat, the drafts open, putting the stoker in operation. The fuel is fed from below, with the fuel spilling over the revolving grate. For every pound of fuel fed into the fire, the percentage of ash produced is automatically removed. The controls operate the stoker in cycles. When the desired room temperature is reached, the dampers are automatically closed to prevent the generated heat from escaping through the flues. It is indicated that this stoker is adjustable for any size of heating plant, for either steam or hot water heating, by dropping in place the proper size grate segments. Controls supplied with the stoker include a thermostat, a high limit control, a draft regulator motor, a low fire control, a transformer, a mercury switch, a manual switch and a motor protecting fuse.

The Stoker Division of Comet Electric Co., 1245 St. Paul St., Indianapolis, Ind., announces this new stoker.



New Natural Draft Stoker



Cartridge-type Heating Unit

New Cartridge-type Heating Unit

A new cartridge-type heating unit designed to provide localized heat for process machinery has been announced recently. This new item is the smallest of a line of similar units. It measures ⅜ in. in diameter by 1¼ in., 2⅜ in., or 3 in. long and is available in ratings of 30, 75 and 90 watts at 115 or 230 volts, a..c. or d.c.

Shown in the accompanying illustration, this unit is

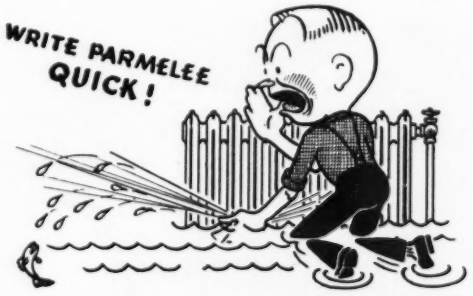
NEW MIDGET-FLAME TORCH
FOR COPPER TUBING WORK

C&L

No. 99
PINT SIZE
FOR CLOSE
QUARTERS

No. 99 torch has a small pointed flame ⅝ inch in diameter by 1¾ inches long at reduced flame. When opened wide the flame is ⅝ inch in diameter and 5 inches long. The curved internal fuel feed pipe and heavy wicking allow this torch to burn in any position.

CLAYTON & LAMBERT MFG. CO.—DETROIT



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•Any Kind
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When you're in a hurry for radiator push nipples—either modern or obsolete—write Parmelee. Complete stock of push nipples to fit any style, type or size of cast iron radiation ever made. *Exact fit guaranteed.* Orders shipped day received. Send sample or sketch giving accurate dimensions. Rust resistant finish if desired. Also boiler nipples. Parmelee Manufacturing Corp., P. O. Box 22, Frankfort, N. Y.

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.manufactured with a brass sheath designed for a maximum operating temperature of 750 deg. Fahr. Features listed for it are: highly compacted insulation; and resistance to vibration.

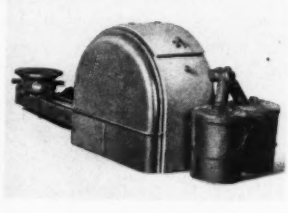
General Electric Company, 1 River Road, Schenectady, N. Y., announces this new heating cartridge.

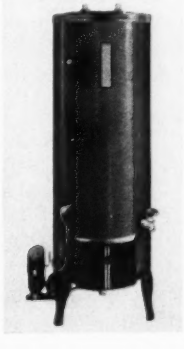
Anthracite Coal Stoker

The accompanying illustration shows a new anthracite coal stoker which has been introduced on the market just recently. It is available in capacities ranging from 20 to 40 lb. of coal per hour.

It is designed for residential heating plants, small industrial plants, small high pressure boilers, etc. The radiation capacity of this stoker is from 550 to 1,100 sq. ft. of direct steam radiation, and from 880 to 1,760 sq. ft. of hot water radiation. It is equipped with controls for automatic operation, and features a new control which regulates the amount of air which is introduced into the firebed, keeping the air supply small when the firebed is relatively loose, and increasing the supply when the bed becomes thicker and more compacted. Other features of the construction of this stoker are as follows: the hopper and enclosure are of copper bearing steel; and the feed screws are made of a special alloy steel which is designed particularly for the purpose.

Fairbanks, Morse & Co., 900 S. Wabash Ave., Chicago, Ill., announces this new anthracite coal stoker.





Above, Anthracite Stoker

Right, New Water Heater

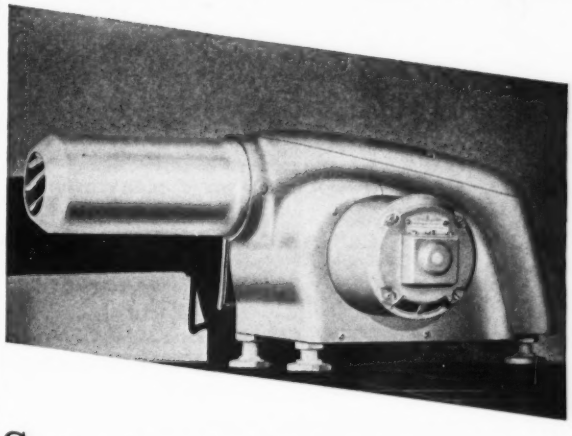
New Oil Burning Water Heater

A new automatic oil burning water heater which has a wide range of water temperature adjustments has been announced recently. It is shown here.

Three models, with capacities 20, 30 and 40 gallons, are available. Fuel consumption of high fire is 1/6 gal. per hour, and on low fire, 1/50 gal. per hour. The heater has a recovery capacity, with a 60 degree rise, of from 22 to 27 gal. per hour, and with an 80 degree rise, of from 17 to 22 gal. per hour. The heaters are equipped with a constant level valve, and thermostatic controls. Connections are ¾ in. for the drain and hot and cold water. It is available in a standard round style or a square cabinet style casing.

The Cleveland Steel Products Corporation, Madison at W. 74th St., Cleveland, Ohio, announces the new oil burning water heater.

Precision Built FOR Profit Protection



SELL A "thrown together" oil burner and you'll throw away profits on service calls. Sell the carefully fitted and aligned Herco and that profit you worked so hard to earn will be yours—*all* yours.

Mere juggling of good parts won't build a good oil burner. Herco specifies the best — Ohio motors with thermal overload protection, Webster two-stage fuel units, Jefferson transformers, stainless steel nozzles, porcelains by Isolantite, Inc That's only the beginning. Exclusive Herco improvements in design give these fine parts a chance to perform at their best. Herco precision engineering assures correct alignments. The machining of the Herco — much of it done on special equipment — allows for close tolerances. And no Herco Oil Burner leaves our shop until it has been thoroughly tested under practical conditions.

Give customers a burner that performs smoothly because it's built that way. Easy to find out how — just mail the coupon.

Look into HERCO

HERCO OIL BURNER CORP.
LANCASTER, PENNA.

GET PROFIT PROTECTION! Thinking of an oil burner franchise? Or tired of selling a burner that always needs servicing? Learn how to protect profits — mail the coupon.

Name.....

Address.....

FACTS OF INTEREST TO PLUMBERS!
MADE BY THE OLD EGYPTIANS USED BY THEIR ROMAN CONQUERORS
NO CHANCE THAT GRITTY CLEANSERS COULD SCRATCH THIS ANCIENT BATHTUB MADE OF ROUGH STONE
BUT BEAUTIFUL MODERN PORCELAIN ENAMEL SHOULD BE CLEANED WITH OLD DUTCH—THE CLEANSER THAT DOESN'T SCRATCH
AND HERE'S THE TEST THAT PROVES OLD DUTCH IS SAFE FOR FINE SURFACES!
Put a little Old Dutch between two pieces of glass and rub them together. You'll neither hear or feel any harsh grating, and no scratches will be made in the glass. Old Dutch particles are flaky and flat-shaped. It is entirely free from the scratchy grit present in ordinary cleansers.
The test shown above is of particular importance to the plumbing industry because the fine surface of modern porcelain enamel is really glass fused onto metal.
Old Dutch Cleanser
To protect the beauty and finish of the plumbing you install so that it may give lasting satisfaction to your customers, recommend that they use Old Dutch, the cleanser made with Seismotite. It does not scratch.

New Information and Aids to Sales

Folder on Boilers

American Radiator Co., 40 W. 40th St., New York, N. Y., has issued a four-page folder announcing the fact that the company's Ideal No. 7 boiler has received the official approval of Anthracite Industries, Inc., laboratory. Notice of approval and what the approval means is incorporated in the folder. The laboratory report is given in resumé. Design features, rating and data on the line are also contained in the folder, which is illustrated with color reproductions of the boiler.

Booklet on Oil Heating

In a thirty-two-page booklet, Williams Oil-O-Matic Heating Corp., Bloomington, Ill., is presenting facts which the average homeowner will find of interest along the line of heating with oil. It presents, alphabetically, simple, basic facts about oil burner heating and Williams oil burning equipment. It contains information, both technical and general, on oil heat. Photographs of oil burners, their integral parts, buildings in which the company's equipment has been installed, burner units combined with boilers, and diagrams showing basic principles behind oil firing are contained in the booklet. The copy is directed to the home owner, and is written in simple, clear language which requires no technical background to understand. The booklet is printed in colors, and measures 5½ by 8¾ in. in size.

Catalog on Unions

Data on pipe unions and fittings are contained in the catalog just published by the E. M. Dart Manufacturing Co., Providence, R. I. Information on types, sizes and prices is contained. Color illustrations show the construction of the equipment covered in the catalog. Further illustrations show processes of operation in the company's plant, and tests which are performed on the finished products before they are released for sale. The catalog contains 14 pages, 8½ by 11 in. in size, and is printed in colors.

Mailing Pieces on Oil Burners

The Fluid Heat Division of Anchor Post Fence Co., Eastern Ave. and Kane St., Baltimore, Md., has issued recently four mailing pieces on its line of oil burners. The mailing pieces are directed to the home owner, and stress various features of the line of oil burners. Economy and automatic heating comfort are the two major points. Photographs of the oil burners, and of their integral parts, are reproduced in each of the mailing pieces. Two of the folders are 8½ by 11 in. in size, and the other two measure 3½ by 6¼ in. All four folders are printed in colors, and there is space left on each for the dealer to imprint his name and address.

Mailing on Water Heaters

Adams Engineering Co., Inc., 2607 Wentworth Ave., Chicago, Ill., is mailing a four-page bulletin and a specification sheet on its line of tankless water heaters. The theme of the booklet, which is illustrated with photographs of the water heater and a typical installation, is that the summer time is a good time to push the sale of water heating equipment. It presents sales pointers for the salesman's use and gives construction details of the line of water heaters. The specification sheet gives such information as dimensions, pipe connections, capacity in gallons of water, and hot water radiation capacities. This sheet also includes prices for the line.

Sales Manual on Stokers

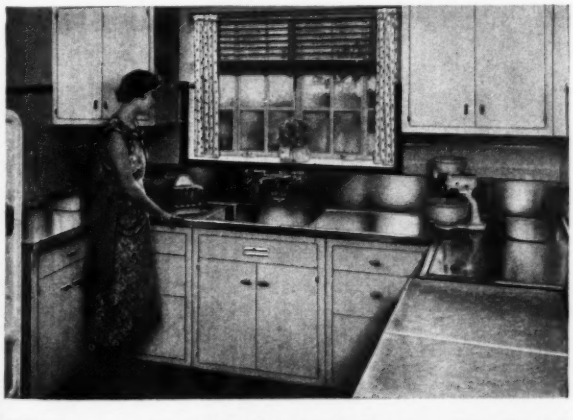
Econocol Stoker Co., Rockford, Ill., has issued a presentation on its line of stokers which is designed to help the dealers' salesmen to present a complete picture of automatic heating to the prospect. The manual tells the story of automatic coal heat, and, with liberal illustration, gets across to the salesmen a sales talk which he can use on his prospects. Photographs of stokers, installations, and different steps in the manufacture of the stoker, and of different steps for him to take in making the sale give the salesman information to use in preparing his arguments. The manual is printed in colors, contains 26 pages, and measures 8½ by 11 in. in size.

Booklet on Welded Pipe Fittings

Bonney Forge & Tool Works, Forged Fittings Division, Allentown, Pa., has issued an illustrated booklet which describes its drop forged pipe fittings for making branch pipe connections by welding. These fittings are available in two types, either for complete welded connections or for threaded connections, once the fitting has been welded into the pipe. Illustrations show the various steps in the process of installing the fittings, and show typical installations. Cross sectional views are also included, which show the design of the fitting. The last two pages of the booklet are devoted to a listing of the various sizes in which the fittings are available. The booklet measures 8½ by 11 in. in size, and is printed in colors.

Swimming Pool Sanitation Folder

The American Water Softener Co., S. E. Corner Lehigh Ave. and Fourth Sts., Philadelphia, Pa., has just released a twenty-six-page folder on sanitation in swimming pools. The folder contains photographs of swimming pools in which the company's sanitation equipment, such as filters, chlorine meters, chemical meters, etc., has been installed. Photographs and descriptive copy cover the products. Inserts contain technical data, measurements, capacities, etc., of the various products in the company's line of equipment. A list of representative users of the company's equipment is contained on the last page.



The **SHOWPLACE** *of the* **Modern Home**

ELKAY Stainless Steel Kitchen Sinks have made the modern kitchen the "Showplace" of the home. Not only are ELKAY equipped Stainless Steel kitchens good to look at, but they incorporate every modern convenience and safeguard to health and eliminate kitchen drudgery.

Plumbers desiring to give their customers the utmost in service, will find it to their interest to recommend ELKAY Stainless Steel Kitchen Sinks. They are custom built to fit any specifications and requirements.

ELKAY Engineers render expert Kitchen Planning Service to Plumbing Contractors. Send us your specifications and we will gladly submit plans and estimates without cost or obligation.

ELKAY MANUFACTURING CO.
4725 ARTHINGTON STREET : : : : : CHICAGO, ILL.

ON HARD OR SOFT WATER

KLEEN TUBE

WATER HEATERS

SAVE MONEY FOR EVERYONE

No replacements are ever necessary because all tubes are *straight* and open at both ends—easily cleanable. Deposits of lime are inhibited because the high, burnished finish of the tubes is not destroyed by bending or forming. Kleen-Tube may be maintained at original efficiency for the life of any heating plant.

ASK FOR COMPLETE DATA

ADAMS ENGINEERING CO., Inc.
2607 Wentworth Ave. Chicago

Catalog on Instruments

Catalog No. 1060 C has been issued by the C. J. Tagliabue Mfg. Co., Park and Nostrand Aves., Brooklyn, N. Y., which covers the company's line of indicating and recording temperature and pressure instruments. Recording thermometers, recording pressure gauges, recorder-controllers, indicating controllers and dial indicating thermometers are instruments which are typical of the line of instruments covered in the catalog, which contains 56 pages. A price list is included.

Price List on Valves and Eliminators

Trade Price Sheet No. 37A, has been issued by Gorton Heating Corporation, Cranford, N. J. The bulletin gives the prices for the company's line of equalizing valves and air eliminators. Photographs illustrate typical models of the equipment in the lines, and short paragraphs of copy tell the uses of the various products. The price sheet measures 8½ by 11 in. in size.

Bituminous Coal Pamphlet

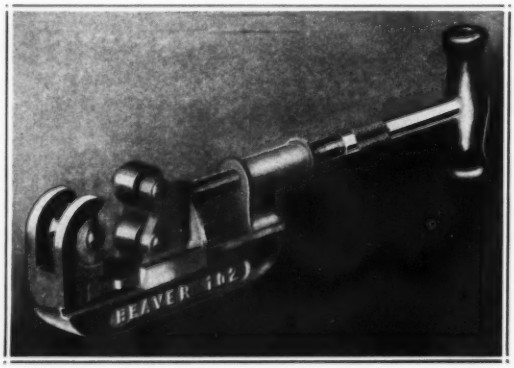
A twelve-page folder, issued by the National Coal Assn. and the Stoker Manufacturers Assn., is entitled "Heat with Coal, the Modern Economical Way." As the title suggests, the pamphlet is directed to the home owner and tells of recent improvements and developments in the preparation and use of coal for home heating. Suggestions for home planning are contained in the pamphlet. Pages are devoted to modern coal burning equipment, with photographs showing different types of automatic heating equipment which is available today. There is space left on the back cover for the dealer's imprint.

Bulletin on Thermometers

Consolidated Ashcroft Hancock Co., Inc., 11 Elias St., Bridgeport, Conn., has recently issued a forty-five-page bulletin on its line of thermometers which describes and illustrates the different models available. In addition to the usual straight stem thermometers, there are shown types which have oblique stems, with extension necks, and other modifications. Bushings, wall fittings, flanges and sockets for use with the thermometers are also shown in the bulletin, which is approximately 8½ by 11 in. in size.

Copper In Building

Revere Copper and Brass, Inc., 230 Park Avenue, New York, N. Y., has issued a 32-page folder entitled "The House You Live In," which describes and illustrates the use of copper in building construction. The applications of copper in heating and air conditioning are stressed. Copper tubing for forced circulation hot water heating, air conditioning spray chambers and pipe and



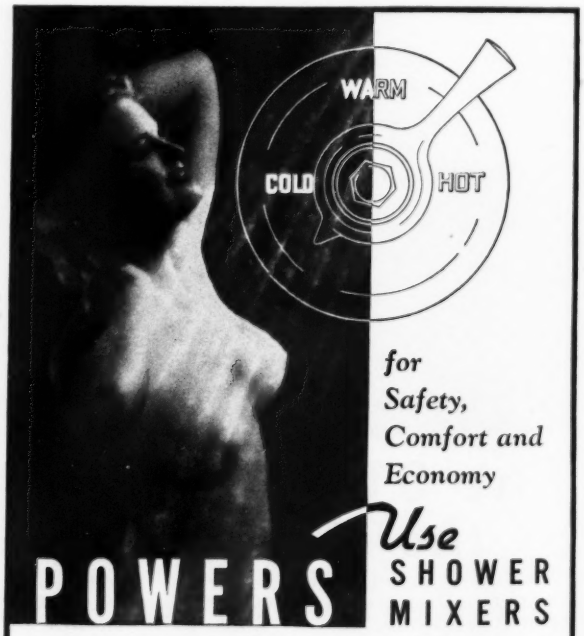
Air Furnace Malleable Iron— It Won't Break!

Patented surface-ground construction. All parts at exact right angles to each other—therefore guaranteed to track. Made of Air Furnace MALLEABLE iron—to withstand severe abuse. Three types of wheels available—(1) standard pipe, (2) cast iron pipe, (3) thin wall tubing. Wheels and rollers are standard and interchangeable with other tools.

No. 102—⅛ to 2" one wheel cutter $3.30; 3-wheel $3.60. No. 204—2½ to 4" 3-wheel only $10.00. Buy through your jobber.

BEAVER PIPE TOOLS

837 DOME AVE. WARREN, OHIO



for Safety, Comfort and Economy

Use SHOWER MIXERS

POWERS

If you want to eliminate the danger of scalding and unexpected "shots" of hot or cold water in your showers install Powers Mixers. Write for circular. 2720 Greenview Ave., Chicago; 231 E. 46th St., New York; Offices in 45 cities. See your phone directory.

THE POWERS REGULATOR CO.

copper ducts are discussed and illustrations taken from typical installations are shown. The use of copper in other phases of construction—roofing, flashing, weatherstripping, water supply systems, water heating tanks, etc., is also discussed. Copy of this booklet is directed to the consumer and is directed particularly to the person planning new construction. The booklet is liberally illustrated showing different types of construction. It is printed in colors and measures approximately 8½x11 in.

Reviews of New Books

Domestic Engineering Catalog and Directory

(*Supplement to Domestic Engineering Plumbing and Heating Catalog and Directory, 1937. Published by Domestic Engineering Co., 1900 Prairie Ave., Chicago, Ill. 154 pages, orange paper cover. Price,* $1.00. *Mailed without charge to subscribers to the Domestic Engineering Plumbing and Heating Catalog and Directory.*)

The purpose of the supplement is to bring up to date the buying information which is contained in the yearly catalog and directory. Sixty-seven pages are filled with manufacturers' buying information—prices, descriptions and dimensions—complete buying data in a clear, concise style. Tables and rules cover seventy-four pages. This section has been amplified by the addition of much technical reference data to be used in the design, specification and installation of plumbing and heating systems. Tables, charts, drawings, adopted trade standards, handy methods of calculating and of estimating are included among the data contained in this section. Both the catalog section and the tables and rules section are accurately indexed.

Degree Day Handbook

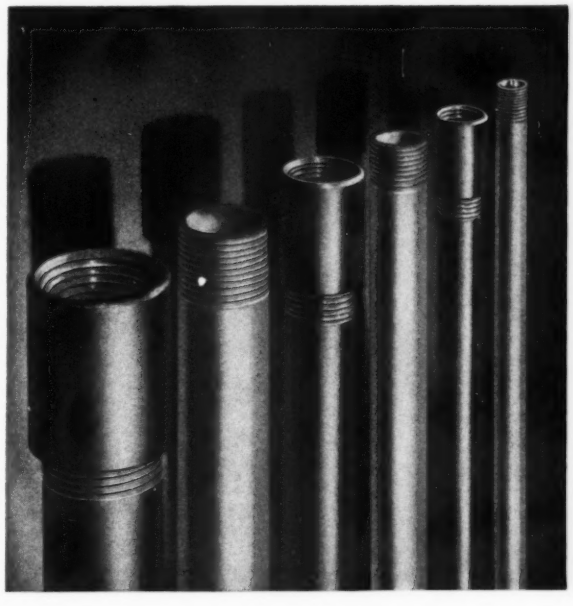
(*Degree Day Handbook, by Clifford Strock and C. H. B. Hotchkiss. Published by the Industrial Press, 148 Lafayette St., New York, N. Y. 298 pages, 6 by 9 in., green semi-flexible binding. Price,* $3.00.)

Degree-day figures for principal cities in the United States, both for average heating seasons and for recent specific heating seasons, are contained in this book. The book also gives definitions of terms, a discussion of how to use the tables, a guide to heating plant operation and efficiency, a presentation on the use of the degree day in sales promotion and in market research, a chapter on how the base temperature is established, a chapter on predicting fuel consumption, and summer cooling data for 18 principal cities. Degree-day maps are printed on the inside cover pages.

Book on Oil Burners

(*Oil Burners, by Kalman Steiner. Published by McGraw-Hill Book Co., 330 W. 42nd St., New York, N. Y. 436 pages, 6 by 9 in., green cloth binding. Price,* $4.50.)

The book begins with a discussion of fuel oils, covering those points which have to do with oil burner engineering, design and operation. Domestic, commercial and

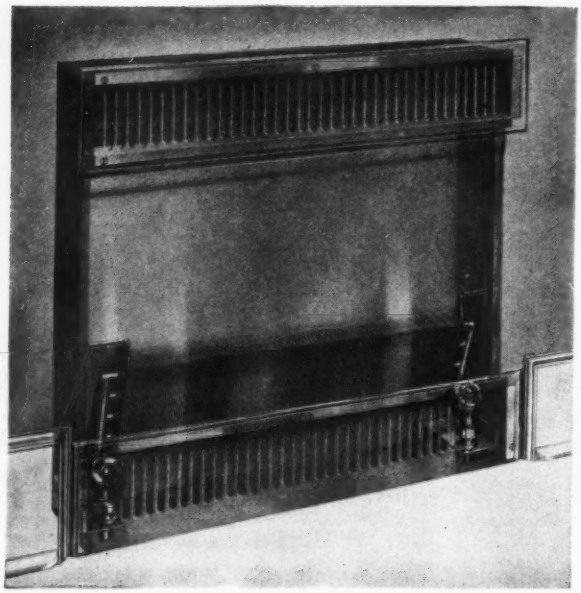


LET'S THROW SOME LIGHT ON THIS MATTER OF *Pipe*

Pipe is probably the most important item in a plumbing system—for without it, how could you have a system—how could you convey water, steam and gas? • Yet pipe probably receives the least thought of any part of the system. To many people, it's just pipe—or steel pipe. • But there is a difference—take Fretz-Moon Pipe, for instance. It is made of clean, coiled skelp of high quality, passed through a special heating furnace which heats it to a definite temperature and then immediately passed through specially designed rolls which form and weld it into a strong, sound tube uniform in every respect, highly ductile and free from hard spots that cause trouble in bending, cutting and threading. Another feature of utmost importance is the fact that during passage through the furnace, never once does it come in contact with the furnace bottom. Thus, it is as clean inside as outside. All mill scale is removed. • If you would use quality pipe at no increase in cost, consider Fretz-Moon.... Ask your jobber or write us.

FRETZ-MOON TUBE CO., INC.
BUTLER • PENNA.

TRY FRETZ-MOON PIPE
—AND KNOW THE DIFFERENCE



Phantom view of typical Webster System Radiator

Webster System Radiator

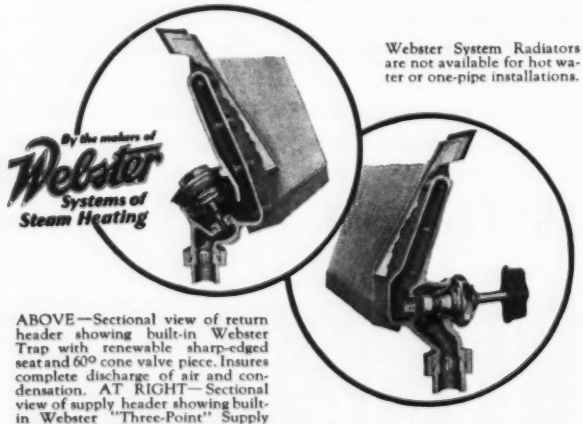
"One-Piece" Concealed Convector for Vacuum and Vapor heating

Leading heating contractors report installation cost savings up to $3.00 per unit with Webster System Radiators, because they are complete, factory-assembled units. No time is lost at the shop in planning field installation details. Roughing-in is simple and uniform for all radiators . . . Other trades, too, like Webster System Radiators because they require no special framing or furring.

Heating element is installed on angle to provide accessibility and maximum heat per unit of space occupied. Built-in union connections allow quick hook-up and reduce number of "joints". Tubes and headers permanently joined by Mueller Streamline fittings.

Enclosure is an all-welded structure of heavy gauge Armco furniture steel finished in factory applied baked prime coat. Grilles are removable. Every heating element is readily removable for cleaning and servicing without damage to wall surface by removing lower grille or front cover and loosening two union connections.

For new buildings, supply your customers with proven dependable heating with Webster System Radiators and Webster Type "R" Vapor Equipment. Sell Webster System Radiators for modernizing apartments and office suites in buildings having vacuum or vapor heating.



Webster System Radiators are not available for hot water or one-pipe installations.

ABOVE—Sectional view of return header showing built-in Webster Trap with renewable sharp-edged seat and 60° cone valve piece. Insures complete discharge of air and condensation. AT RIGHT—Sectional view of supply header showing built-in Webster "Three-Point" Supply Valve with metering orifice. Insures positive shut-off and uniform heating.

WARREN WEBSTER & CO., 1637 Federal St., Camden, N. J.
Pioneers of the Vacuum System of Steam Heating—Established 1888
Representatives in 60 principal U. S. Cities—Darling Bros., Ltd., Montreal, Canada

industrial burners are each given a full chapter. Accessories—fans, motors, controls, ignition devices, pumps, strainers, piping, strainers, flow regulators, tanks and gauges are also discussed. The technical aspects of oil burner servicing are treated fully. An appendix contains tabulated technical information on temperature conversions, characteristics and properties of oils and metals, properties of steam, firebrick shapes and similar data. The book is illustrated with photographs and charts.

Oil Fuels and Burners

(*Oil Fuels and Burners, by James A. Moyer. Published by McGraw-Hill Book Co., 330 W. 42nd St., New York, N. Y. 375 pages, 6 by 9 in., green cloth binding. Price,* $4.00.)

Automatic domestic type oil burning equipment and its design, operation, sales and service are covered in this book. Fuel oil is discussed so far as its preparation for final burning in the equipment is concerned. Automatic control devices, fans and blowers are accessory equipment covered. The association of automatic heat with air conditioning and better building construction is evidenced by chapters on insulation and air conditioning. Practical work, in the form of heat measurements, calculations of heating requirements and systems, is also contained in the book. The book is liberally illustrated with charts, drawings and photographs.

Design of Welded Piping

(*Design of Welded Piping, by the Linde Air Products Co., 205 E. 42nd St., New York City. 200 pages, 6 by 9 in., paper cover. Copies available on request.*)

Information on design and layout of piping for welded connections is contained in this book. It replaces a previous issue, published in 1929. Standard joint designs have been revised in accordance with current practice. New material includes engineering fundamentals of welded joints; standards for pipe, flanges and fittings; piping layout; and preparation of specifications and drawings. Tables and diagrams illustrate the text.

Duct Construction

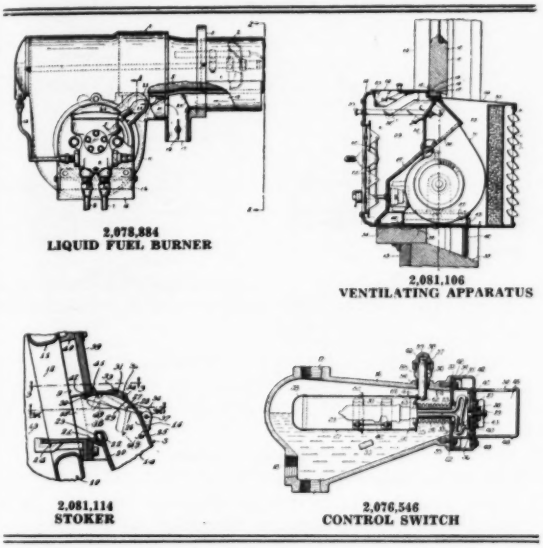
(*Duct Construction, by O. W. Kothe. Published by Sheet Metal Publication Co., 45 W. 45th St., New York, N. Y. 270 pages, 5½ by 8 in., red fabrikoid binding. Price,* $3.00.)

This book is written with the idea of giving the sheet metal man principles of duct design and construction. It is a practical book, with engineering information given where it has a direct bearing on shop work, such as in the chapters on air flow through elbows, to establish the reason for certain types of construction. The book covers sheet metal work from a good shop layout to ductwork installations in typical buildings. Both round and rectangular ducts are discussed, along with special types of work such as heater casings, housings, air washer housings. Automatic controls and insulation are also discussed. The first sections of the book are devoted to technical data such as symbols, gauges of metals and wire, etc.

NEWS *of* PATENTS

Heating

2,078,884. Liquid Fuel Burner. Earl C. Vollmer, Rock Island, Ill., assignor to Micro-Westco, Incorporated, Bettendorf, Iowa, a corporation of Delaware.



2,078,884
LIQUID FUEL BURNER

2,081,106
VENTILATING APPARATUS

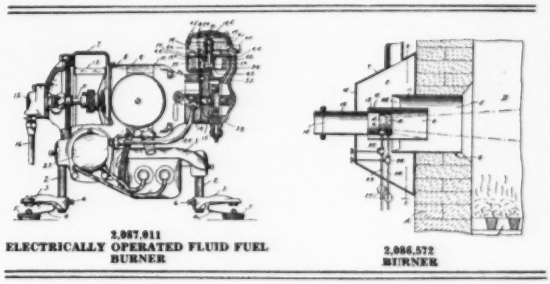
2,081,114
STOKER

2,076,546
CONTROL SWITCH

2,081,114. Stoker. Howard P. Anderson and Eugene Martin, Erie, Pa., assignors, by mesne assignments, to The Standard Stoker Company, Inc., a corporation of Delaware.

2,081,106. Ventilating Apparatus. Francis C. Kilb, Larchmont, N. Y., assignor to American Radiator Company, New York, N. Y., a corporation of New Jersey.

2,076,546. Control Switch. Oscar F. Carlson, Chicago, Ill., assignor, by direct and mesne assignments, of one-half to Oscar F. Carlson Company, Chicago, Ill., a corporation of Illinois, and one-half to Everett N. McDonnell, Chicago, Ill.

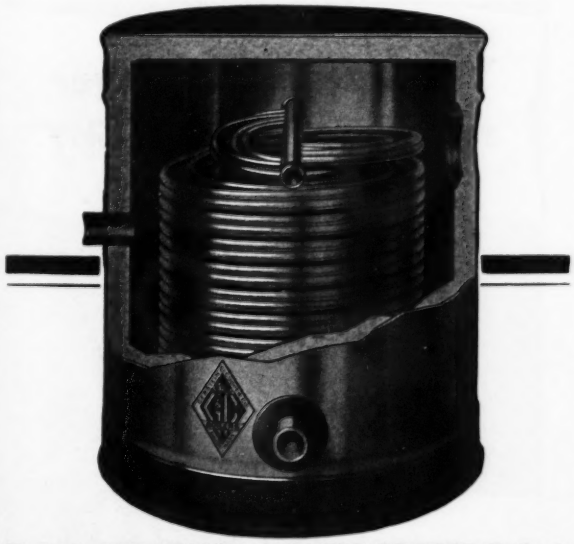


2,087,011
ELECTRICALLY OPERATED FLUID FUEL BURNER

2,086,572
BURNER

2,087,011. Electrically Operated Fluid Fuel Burner. Walter W. Williams, Philip A. Celander, and Oliver Earl Nesmith, Bloomington, Ill.; said Celander and said Nesmith assignors to Williams Oil-O-Matic Heating Corporation, Bloomington, Ill., a corporation of Illinois.

2,086,572. Burner. James D. O'Brien, Brooklyn, N. Y.



PROFIT-WITH THIS NEW G&C TANKLESS WATER HEATER

For Automatically Fired Systems

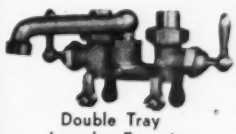
This Highly Efficient Water Heater will deliver a minimum of 360 gallons of hot water per hour. Ruggedly constructed. Domestic Water shell is heavy gauge copper, electrically welded and thoroughly insulated. Copper tubing is silver-brazed to bronze headers, with no threaded or ground joints to leak. Jacket is lead coated steel finished in Duco. Available to the trade only through Selected Recognized Distributors. Write today for complete details about Distributor franchise.

GERSTEIN & COOPER CO.

South Boston, Massachusetts

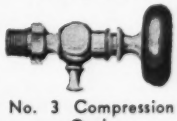
Offices in New York and Baltimore.

FALL HEATING AND PLUMBING NEEDS



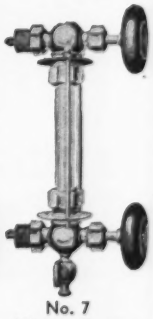
Double Tray Laundry Faucet

Stock these and other fall needs now in high quality Consolidated Brass. Priced for volume sales—they repay you excellent profits. Write for catalog.



No. 3 Compression Cock

Boiler Drain No. 7750



No. 7 Water Gage

No. 2010 Pop Safety Valve

Steam Gage Syphon No. 1975

No. 46 Air Cock

Fusible Plug No. 1611

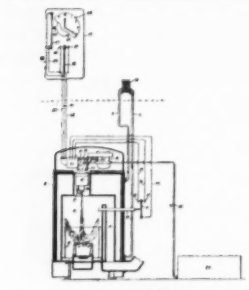
No. 26 Air Cock

CONSOLIDATED BRASS CO.

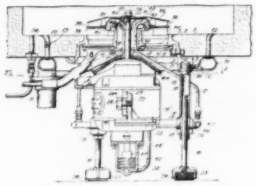
138 Summit Avenue Detroit, Michigan

2,084,880. Control Apparatus for Heating Systems. Gaylord H. Wotring, West Caldwell, N. J., assignor to General Electric Company, a corporation of New York.

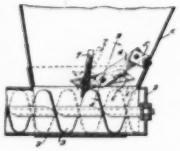
2,084,237. Agitator for Stokers. Oscar L. Bartlett, Cairo, Ill.



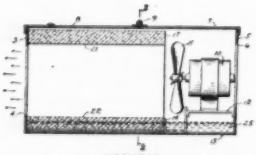
2,084,880
CONTROL APPARATUS FOR HEATING SYSTEMS



2,086,377
OIL BURNER



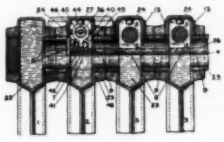
2,084,237
AGITATOR FOR STOKERS



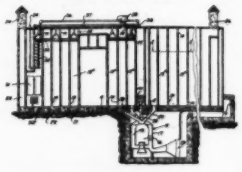
2,085,390
AIR COOLER AND HUMIDIFIER

2,086,377. Oil Burner. George A. Bryan, Peru, Ind., assignor to Bryan Steam Corporation, a corporation of New Mexico.

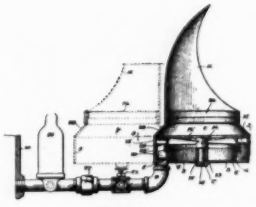
2,085,390. Air Cooler and Humidifier. James G. Quinlivan, Dickinson, N. Dak.



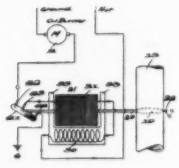
2,084,365
AUTOMATIC AIR CONDITIONING RADIATOR



2,087,147
AIR CONDITIONING SYSTEM FOR BUILDINGS



2,083,690
HUMIDIFIER



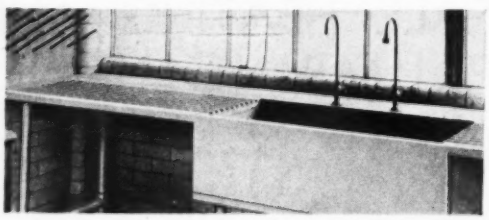
2,085,912
CONTROL DEVICE FOR HEATING SYSTEMS

2,084,365. Automatic Air Conditioning Radiator. Erwin Leo Franz Weber, Seattle, Wash.

2,083,690. Humidifier. Bernhardt Cohen, New York, N. Y.

2,087,147. Air Conditioning System for Buildings. Hal Hayes, Los Angeles, Calif.

2,085,912. Control Device for Heating Systems. John K. Lencke and Herman Schmid, Kingston, N. Y.



SPECIAL SINKS TO FIT ANY SPACE

ALBERENE BEST STONE

Non-absorbing and non-staining, Alberene Stone is ideal for sinks and laundry trays. Tongue and groove joints with hidden bolts, permanently cemented, have the strength and tightness of one-piece units.

Alberene is acid-, heat-, and wear-resisting. It can be shaped, sawed and fabricated in any desired shape or form.

Order Alberene Sinks of any dimensions to fill any desired spaces. Shipment will be made within one week from the receipt of order and complete details as to sizes, openings, etc.

Write for special price on the Alberene 44" Laundry Tray, plain and in Duco colors.

Good Housekeeping 2744

ALBERENE STONE CORP. OF VIRGINIA
419 Fourth Avenue, New York, N. Y.
Quarries and Mills at Schuyler, Va.

ALBERENE STONE SINKS • TRAYS

Youngsters no longer need be "SHOWER-SHY"

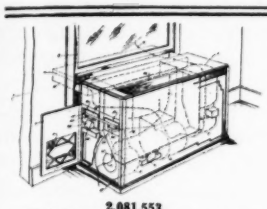
Parents appreciate the *safety* of the Doran Safe-T-Showr. It's absolutely impossible for children to scald themselves. The Doran valve delivers water at prefixed temperatures from cold to 120 degrees—but *never* hotter! Ask your jobber about the low cost of the Doran thermostatic - controlled Safe-T-Showr.

SAFE-T-SHOWR

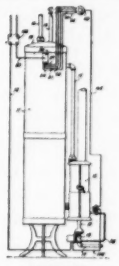
DORAN COMPANY
SEATTLE, WASH.

2,081,553. Air Conditioning Apparatus. Charles R. Neeson, New Rochelle, N. Y., assignor to Baldwin-Southwark Corporation, a corporation of Delaware.

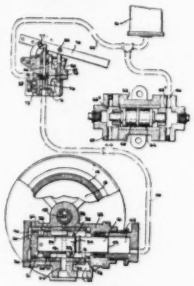
2,080,838. Stoker Drive. Earl R. Stone, Lansdowne, Pa., assignor to Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa., a corporation of Pennsylvania.



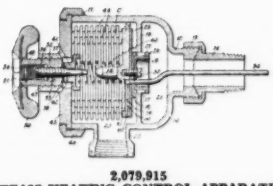
2,081,553
AIR CONDITIONING APPARATUS



2,079,650
HOT WATER SUPPLY REGULATOR



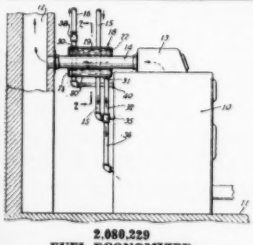
2,080,838
STOKER DRIVE



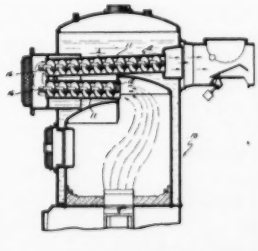
2,079,915
STEAM HEATING CONTROL APPARATUS

2,079,650. Hot Water Supply Regulator. Lyle Beeman, Milwaukee, Wis.

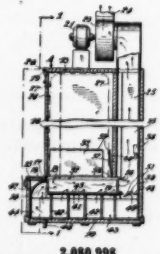
2,079,915. Steam Heating Control Apparatus. John T. Midyette, Jr., Scarsdale, N. Y.



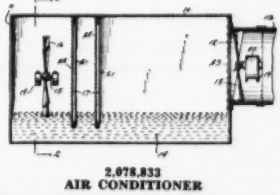
2,080,229
FUEL ECONOMIZER



2,077,776
INSERT FOR BOILER AND HEATER FLUES



2,080,998
AIR CONDITIONING APPARATUS



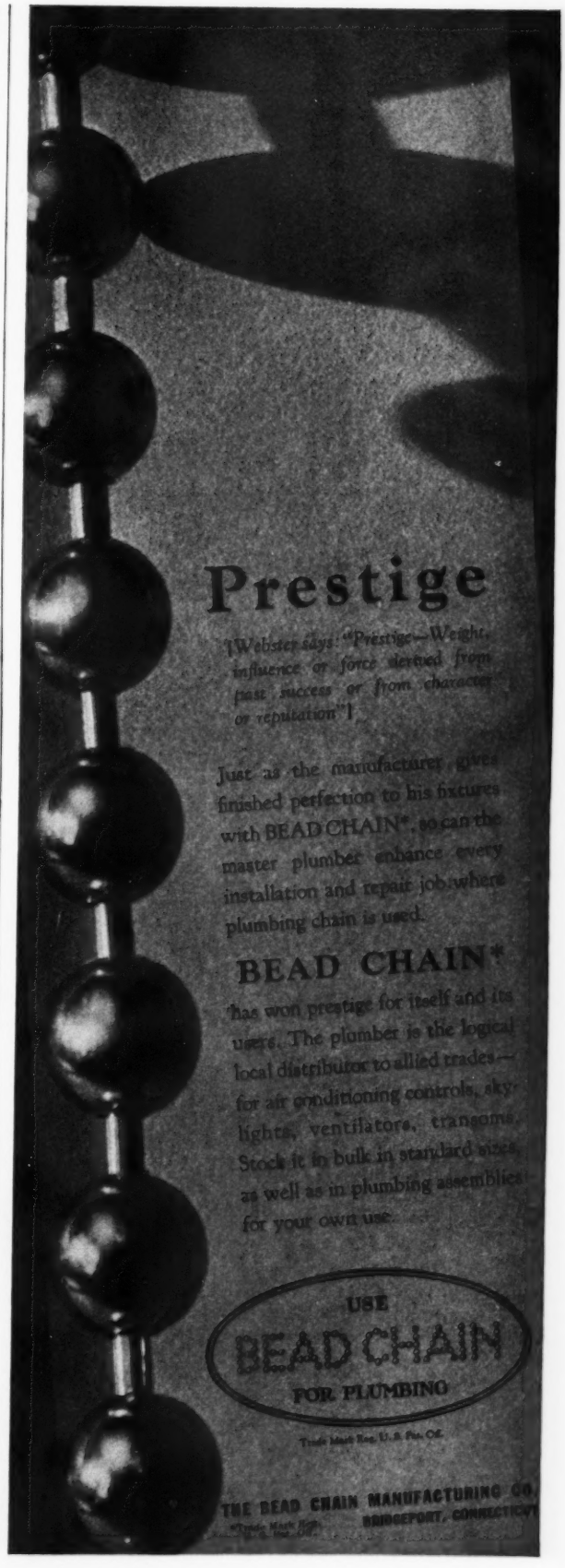
2,078,833
AIR CONDITIONER

2,080,229. Fuel Economizer. Alvenza Carter Ray, Newfield, N. J.

2,080,998. Air Conditioning Apparatus. Robert T. Brizzolara, New Dorp, Staten Island, N. Y.

2,077,776. Insert for Boiler and Heater Flues. Edmund Schmitt, Stratford, Conn.

2,078,833. Air Conditioner. Willis Bonner, Duncan, Okla.


Prestige
[Webster says: "Prestige—Weight, influence or force derived from past success or from character or reputation"]
Just as the manufacturer gives finished perfection to his fixtures with BEAD CHAIN*, so can the master plumber enhance every installation and repair job where plumbing chain is used.
BEAD CHAIN*
has won prestige for itself and its users. The plumber is the logical local distributor to allied trades—for air conditioning controls, skylights, ventilators, transoms. Stock it in bulk in standard sizes, as well as in plumbing assemblies for your own use.
USE
BEAD CHAIN
FOR PLUMBING
THE BEAD CHAIN MANUFACTURING CO.
BRIDGEPORT, CONNECTICUT

73%

★ INCREASE IN SALES OF ★

BURKS

PUMPS AND WATER SYSTEMS

FIRST 6 MONTHS THIS YEAR

OVER SAME PERIOD IN 1936

IS NOT A COINCIDENCE!

Nearly Twice as Many People Have Selected a BURKS, During the First 6 Months of 1937

- Quality of Product
- Unmatched Performance
- Larger Dealer Profit
- Strict Jobber-Dealer Policy

Contribute to the Popular Demand by

JOBBERS

DEALERS

CONSUMERS

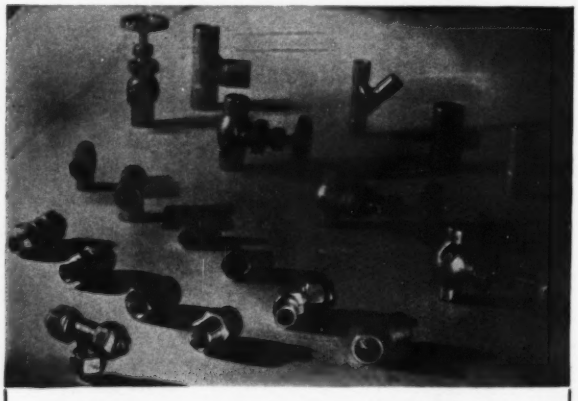
FOR

BURKS

Self Priming — Super Turbine

PUMPS AND WATER SYSTEMS

DECATUR PUMP COMPANY DECATUR, ILLINOIS.



Fittings by Nibco

Years of experience, won during the pioneering days of copper plumbing, are reflected in the complete line of valves and fittings manufactured by NIBCO. That's why experienced plumbers prefer these time-tested products, and look for the NIBCO trademark as an assurance of quality and workmanship.

NORTHERN INDIANA BRASS COMPANY

ELKHART, INDIANA

Census—

(Continued from Page 93)

equipment dealers reported 6.7 per cent of total operating expenses went for rent in 1935 as compared with 16.5 per cent of total operating expense for all retailers. On the average, these dealers should have better quarters than contractors, hence the average rent for all plumbing and heating retailers should be somewhat less than these figures.

In the same table it is shown that 34.6 per cent of sales for the plumbing and heating equipment dealers were for operating expenses in 1935, 40.3 per cent in 1933 and 33.8 per cent in 1929. This is a much higher percentage than those shown in the adjoining column for all retailers—which were 22.9 per cent, 26 per cent and 21.1 per cent, correspondingly, for each of these years. Since this total operating expense does not include compensation for services of proprietor-owners, it is not possible to determine from these figures the cost of materials sold. How these figures vary in five typical states is shown in Table VII.

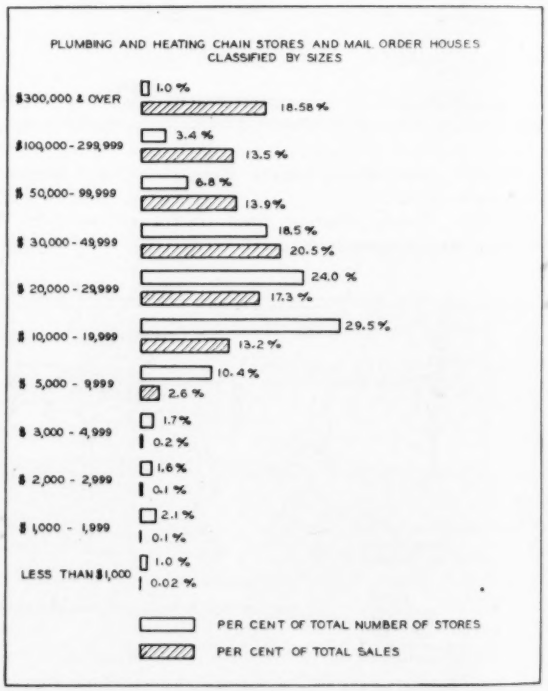


Chart 6—From the first six groups we find that 83.2 per cent of the chain stores and mail order houses do 96.98 per cent of the business

Retail chains, although still a lively factor in the distribution of plumbing and heating equipment, definitely are losing ground, according to the Census. In 1929 there were 20 chains with 831 units reporting sales of $35,536,000. By 1933 these figures had dropped to 8 chains, with 566 units reporting sales of $10,757,000. In 1935, 10 chains reported 434 units and sales had risen to $15,583,000. This gain, however, was not equal to that registered by the entire industry during the same period. Additional data on chains can be found in Table VIII.

Figures show that the plumbing and heating con-

TABLE VII
RETAIL OPERATING EXPENSES (EXCEPT PROPRIETORS' COMPENSATION) FOR HEATING AND PLUMBING EQUIPMENT DEALERS

	Calif.	Ga.	Ind.	Kan.	N. Y.
Number of Stores.....	343	29	188	123	595
Sales (add 000) 4,916		567	2,391	1,001	15,993
Total Payroll Amount (add 000)	987	130	548	170	3,393
Per cent to sales...	20.1	22.9	22.9	17.0	21.2
Total reported expenses (including payroll) (add 000)..1,623		174	806	303	5,588
Total reported operating expenses*. Per cent to sales:					
1935	33.0	30.7	33.7	30.3	34.9
1933	39.6	43.1	42.5	36.4	41.5
1929	32.0	37.7	35.9	29.8	32.0

RETAIL OPERATING EXPENSES — STORES REPORTING RENTAL OF LEASED PREMISES—HEATING AND PLUMBING EQUIPMENT DEALERS

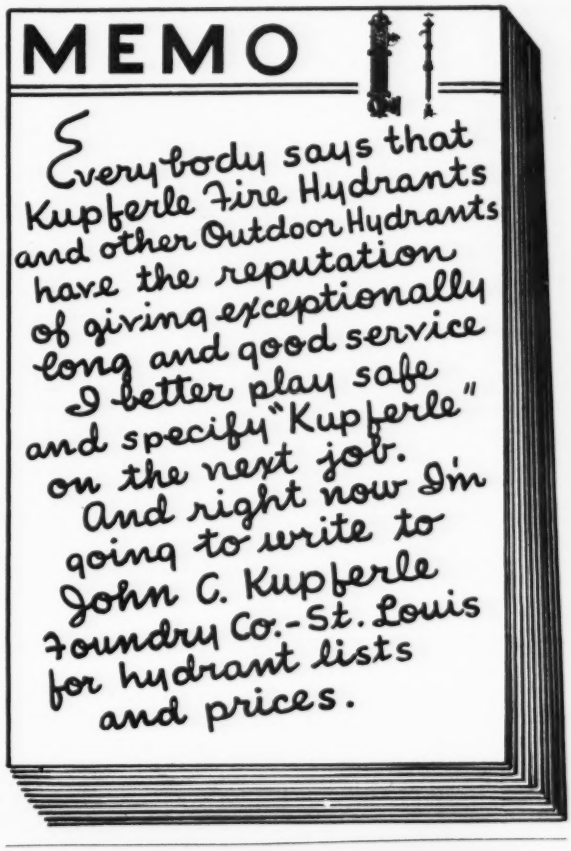
	Calif.	Ga.	Ind.	Kan.	N. Y.
Number of Stores.....	177	11	104	55	328
Sales (add 000).....2,444		275	1,548	524	10,152
Rent Paid (included in total reported expenses) (add 000)...	79	4	34	16	243
Ratio of Rent to Sales:					
1935	3.2	1.5	2.2	3.1	2.4
1929	3.0	2.5	2.5	2.1	2.5
Ratio of Rent Paid to Total reported operating expenses	9.5	3.9	6.3	9.6	7.3
Total reported operating expense amount (add 000)	830	103	539	167	3,336
Per cent to sales...	34.0	37.5	34.8	31.9	32.9

*Does not include compensation for services of proprietor-owners actively engaged in the operation of their stores.

tractor does the major portion of the work in his own city, the actual percentage being 83.1 per cent; 13.1 per cent of his work is done in his home state but not in his home city and 3.8 per cent outside of his home state.

Chart 3, based on data from the Census, shows the seasonal trend of plumbing labor, heating labor and a composite of both. The mean or average deviation for plumbing and heating is only 8.6 per cent. In contrast to this, labor in the general contracting business has a mean or average deviation of 20.6 per cent from the normal. This clearly indicates that employment, and hence sales in the plumbing and heating industry, are comparatively even throughout the year. Even the wide variation in the employment curve of the general contracting industry apparently does not have a great effect on the plumbing and heating industry.

Charts 4, 5 and 6 give data on the percentage of the total number of contractors, retailers and chains and mail order houses that fall into various classifications arranged according to the total volume of business done. The mail-order houses included in these figures are only those houses that confine their business primarily to mail order sales of plumbing and heating equipment. The cumulative figures in Chart 5 show that 35 per cent of the plumbing and heating contractors did $10,000 worth of business or more in 1935. This 35 per cent accounted for 83 per cent of the total volume of business. 83.2 per cent of the chains and mail order houses did 97 per cent of the total volume of business and 39.4 per cent of the


MEMO
Everybody says that Kupferle Fire Hydrants and other Outdoor Hydrants have the reputation of giving exceptionally long and good service
I better play safe and specify "Kupferle" on the next job.
And right now I'm going to write to John C. Kupferle Foundry Co.-St. Louis for hydrant lists and prices.

Waterproof!
EAGLE Super FLANGE
EAGLE
super roof flange
One-piece—all lead. Special caulking ring —adjusts to any roof pitch.
THE EAGLE-PICHER LEAD COMPANY
CHICAGO • JOPLIN • CINCINNATI
FOR YOUR PROTECTION this product is sold only through recognized plumbing supply dealers—who in turn loyally support master plumbers.

TABLE VIII
UNITED STATES SUMMARY: 1935
HEATING AND PLUMBING EQUIPMENT RETAIL CHAINS

ALL CHAINS IN 1935	
Number of chains	10
Number of units	434
Store sales (add 000)	$15,583
Store employees (average number)	4,369
Store payroll—total (add 000)	$ 5,347
Full-time (add 000)	$ 5,302
Part-time (add 000)	$ 45
Other store operating expense (add 000)	$ 1,978
Total store operating expense (add 000)	$ 7,325
Expense per cent to sales	47.0
Stocks on hand, at cost (add 000)	$ 2,029
COMPARISONS OF IDENTICAL CHAINS	
Identical chains, 1933 and 1935	4
Number of units, 1935	407
Number of units, 1933	519
Store sales, 1935 (add 000)	$13 769
Store sales, 1933 (add 000)	$10,041
Per cent increase, 1933 to 1935	37.1
Average number of employees, 1935	4,177
Average number of employees, 1933	3 531
Per cent increase, 1933 to 1935	18.3
Store payroll 1935 (add 000)	$ 4,961
Store payroll 1933 (add 000)	$ 3,852
Per cent increase, 1933 to 1935	28.8

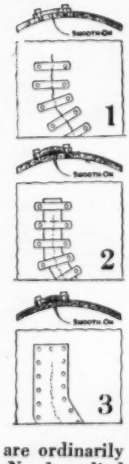
plumbing and heating equipment dealers did 82.1 per cent of the total volume of business.

The only similar survey that was ever made before was made by DOMESTIC ENGINEERING in 1926. This survey showed that 35.1 per cent of the retail outlets in the plumbing and heating field did 77 per cent of the business. This survey made by DOMESTIC ENGINEERING included both the plumbing and heating equipment dealer and the plumbing and heating contractor. Because the classifications are not the same for these two groups in the 1935 Census, it is not possible to combine them and thus arrive at a comparable figure. However, the figures on the plumbing and heating equipment dealer show that if they were combined with the plumbing and heating contractors, 35 per cent of the total group would account for something like 80 or 81 per cent of the total volume of business. Thus this Census indicates that since 1926 there has been a tendency for the more aggressive retail outlets to increase their lead over the other outlets.

TYPE OF WORK DONE

A Census breakdown shows the type of work done by plumbing and heating contractors. 47.1 per cent of the total was made up of new construction and additions. 52.9 per cent was made up of remodeling, repairs and maintenance. Within these classifications, 72.6 per cent of the new construction and addition work was private and 27.4 was public. 95 per cent of the remodeling, repairs and maintenance work was private and 5 per cent public. In considering this data it should be borne in mind that it applies only to the plumbing and heating contractor and not to the plumbing and heating equipment dealer. A much larger portion of the material sold over the counter or through the plumbing and heating dealer—in fact, nearly all of it—goes into remodeling work. Hence a much larger portion of the total volume would go for remodeling, repairs and maintenance.

STOPPING LEAKS at CRACKS in METAL with SMOOTH-ON No. 1



THE tight seal formed by Smooth-On No. 1 comes principally from its expansion in hardening. The cement therefore must be *forced into* the opening, with walls to expand against.

If pressure, warping, vibration or expansion from heat are apt to strain the repair, it should be reinforced. Plain metal straps (Fig. 1) fastened across the crack with screws, or around the casting with straps will give the necessary protection. A surface pocket and clamp for forcing additional Smooth-On against the crack are desirable under severe conditions, and obtainable by putting a metal patch plate under the straps (Fig. 2) or by utilizing a patch plate held at the edges by screws (Fig. 3).

Smooth-On repairs under any conditions are ordinarily the quickest practical ones, and Smooth-On No. 1 applied after shut-down is ready for service next morning.

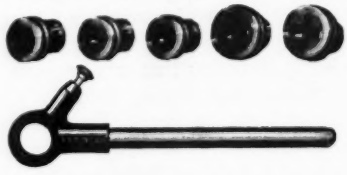
Write for free booklet and get Smooth-On No. 1 in 1 or 5-lb. can or 25-lb. keg from your supply house.

SMOOTH-ON MFG. CO., Dept. 12
570 Communipaw Ave., Jersey City, N. J.

Do it with **SMOOTH-ON**

NYE TOOLS
"The Kind You Swear By and Never At"

Nye "TRIAD" Stock
No. 50 RATCHET TYPE
FURNISHED WITH METAL BOX



FURNISHED with Nye solid round dies, held in place by two stationary pins built in head to prevent their turning, and locked in by threaded cap, easily removed by a few right hand turns.

Dies reversible for threading close nipples, special bushings provided for this purpose.

No. 50 has capacity ⅛" to ¾" *and for the operator requiring larger range No. 60 has capacity* ⅛" *to* 1¼".

ASK YOUR JOBBER

The **NYE Tool & Machine Works**
4120-30 Fullerton Avenue, Chicago, Ill., U. S. A.

First FTC Decision—

(Continued from Page 59)

spondent's products in a large majority of cases, cross state lines from the factory to the warehouse, and the interstate character of this commerce continues, under the facts and circumstances in this case, down to and including the sale and delivery of such products to the retailer."

Or to put it as the Commission concluded: "Respondent . . . is engaged in interstate commerce and . . . the sales of its products to retailers are likewise made in the course of such commerce. A retailer who purchases respondent's goods from jobbers and wholesalers is considered by the Commission to be a 'purchaser' within the meaning of the Robinson-Patman Act as well as retailers buying direct. This is because . . . respondent recognizes the retailers buying through jobbers as customers by personally soliciting them and by making effective its price policies and schedules as supplied to them. A retailer is none the less a purchaser because he buys indirectly if, as here, the manufacturer deals with him directly in promoting the sale of his products and exercises control over the terms upon which he buys."

DISCUSSION OF REASONS FOR DISMISSAL

Discussing the reasons for dismissing the complaint, the statement of the Commission states that the use of the discount attacked as being violative of the Robinson-Patman provisions is prevalent in the industry. It also says that the respondent's products are sold at higher prices in most cases than are its creditors. The statement of the Commission describes the system of truck delivery to retailers as used by respondent and points out that respondent undertakes to exchange new goods for any products which may have deteriorated while in the retailer's truck. "Consequently, in spite of the perishable character of cheese and salad products, a retailer who wishes to do so may safely buy a two or three weeks' supply at one time without fear of spoilage." The evidence, the statement says, shows that the ability to use such a delivery system without loss depends upon the size of the average sales and that the discount for $5.00 purchases was intended to make sales large enough to justify such a method of delivery. Furthermore, it was pointed out this discount does not appear to inflict any perceptible injury on those who do not receive it, since the discount would amount to three-fourths of a cent a package while the prices of the more frequently sold package cheese items at retail vary as much as two or three cents. As the Commission says: "The retail price depends so much upon the character of the store, the buying power of its customers, the importance of its cheese trade, and the nearness of other competing stores that there is no basis for concluding that the price of cheese products is governed by the receipt of the discount."

In discussing the discount upon loaf cheese it was pointed out that a buyer in the highest of the four quantity brackets pays 2½ cents a lb. less than his competitor falling under the lowest bracket. But it was also shown that the respondent's method of delivery to buyers in the two upper brackets differs from that to buyers in the

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Boiler Tube Cleaners, Flue Brushes, Wire Heater Brushes, Handy Cleaner Brushes, Fire Brooms, Track Brooms.

Tempered Steel
The Worcester line is complete.
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WORCESTER BRUSH and SCRAPER CO.
10 AUSTIN STREET WORCESTER, MASS.

SEWER BLAST HERE SHATTERS WINDOWS
11 Taylor Street Manholes Uncovered to Release Gas
Blast Shakes Beach City
Firemen, Police Rush to Scene At Armory and Albany Streets
Flaming Flash
Sears
Sewer Gas Explodes

Protect Your Community

Headlines tell of the presence of sewer gas. Sometimes the gases ignite . . . and the explosions make headlines in newspapers from coast to coast. More often, the gases invade homes and attack the health of occupants without betraying their presence.

Protect your customers by installing the Phillips Automatic Trap Seal Valve. It prevents the entry of gases and vermin from the sewer . . . by maintaining a constant fresh water seal in drain traps.

You profit . . . the valve sells for $5 retail; you get an installation job of from $5 to $15. Order a sample valve and display poster now.

Phillips AUTOMATIC TRAP SEAL VALVE

PHILLIPS CORP., 806 S.W. Broadway, Portland, Oregon.
☐ Send me Display Poster
☐ Send me ..... Phillips Valves at $3.50 each through .....
(My plumbing wholesaler)
My name .....
My address .....

TANK BALL SELLING
Made Easy!

Long known by the trade for its dependability in service, the DANDY Tank Ball is now available packed in this new AIR-TIGHT container . . . a unique advantage which *sells*. A tank ball of better quality, the DANDY resists alkali . . . does not swell . . . adapts its soft seat to all types of valves. To insure its being FRESH at the point of SALE, the DANDY now comes to you factory sealed. This outstanding advantage coupled with its already well-established reputation makes the DANDY a "natural" for your trade. Dress up your counter with the gay-colored DANDY counter-carton. It contains a dozen *fresh* DANDY Tank Balls. Order through your wholesaler today.

THIS CARTON KEEPS 'EM MOVING!

DANDY
LAVELLE LUCKY STRIKE RUBBER CO.
TANK BALLS
Made by
LAVELLE
RUBBER CO.
320 W. Illinois St., Chicago

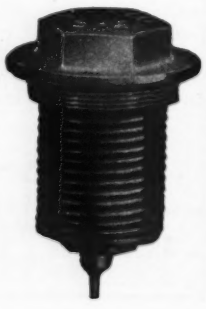
Coal Bills Go Down When You Install Sarco Adapters

If you are using too much fuel or cannot properly heat your building, it is probably the fault of old, worn, leaky radiator traps.

To be effective, traps must rapidly remove all air so that steam can get into radiators and they must drain all condensate without permitting steam to escape.

At little expense and without disturbing pipe connections you can equip the insides of any make of old trap with Sarco Adapters.

They eliminate hammering noises at once and are guaranteed to make old radiator traps equal to new in steam savings. Radiators heat up more quickly, and ample steam can be fed to all parts of the system at greatly reduced steam pressures. These units consist of a cap and a motor element.



Write for Catalogue M-111.

SARCO CO., INC.
183 Madison Ave.
New York N. Y.
Branches in Principal Cities
SARCO CANADA, Limited
Federal Bldg., Toronto, Ont., Canada

two lower brackets. As the Commission says: "There is a reasonable presumption that this difference in cost would justify the entire difference of 2½ cents per lb. between the price paid by those who buy 750 lb. or more of loaf cheese and those who buy less than 30 lb. The practical impossibility of making an accurate allocation of costs to each kind and amount of product delivered from the same truck is no ground for ignoring this reasonable inference."

From all of this the Commission concluded: "That the price differences established by the respondent in the sales of the products to retailers do not intend to create a monopoly in respondent or to lessen or injure competition between respondent and its competitors. The Commission also concludes that such price differentials do not tend to injure competition between retailers reselling such products."

THE OTHER DISMISSED COMPLAINT

The other complaint dismissed was the one involving Bird and Son, Inc. and Montgomery Ward. As shown in the November issue of DOMESTIC ENGINEERING, this complaint charged that Bird and Son, Inc., were selling hard surface felt base floor covering at discriminating prices in favor of Montgomery Ward and Company in violation of Section 2a of the Robinson-Patman Act. The memorandum opinion handed down on July 17 points out that about a year and a half before the Robinson-Patman Act was passed the Bird and Son company and its selling subsidiary inaugurated a new sales policy, discontinued direct sales to retailer. By the end of October, 1936, no goods were being sold to retailers and jobbers and mail order houses were being sold at the same net price. As to the four months intervening between the passage of the Robinson-Patman Act and October it was pointed out that the cost of selling to mail order houses was 18.6 per cent as against a cost of selling direct to ordinary retailers of 47.1 per cent. "Since the Act specifically permits differentials in price that 'make only due allowance for difference in the cost of the manufacture, sale or delivery resulting from the different methods or quantities in which such commodities are to such purchasers sold or delivered' the amount of discrimination existing in this case was apparently within the terms of this proviso."

RIGHT TO SELECT CUSTOMERS

The memorandum statement went on to discuss the present sales policy of selling only to jobbers and mail order houses and pointed out that this policy is not one of discrimination in price between the only two classes of customers now sold to. The Commission says "The Act does not purport to interfere with the right of a seller to select his customers. He may discriminate in the choice of his customers. Not until there is a discrimination in price among those chosen does Section 2a of the Act have any application. There is no suggestion that the selection of customers here involved was the result of any combination in restraint of trade. Rather, it was in order to reduce seller-respondent's costs of distribution. The courts have consistently upheld the right of individual traders to select their customers in the absence of such combination."

A. C. Model House—

(Continued from Page 95)

A system divided in this manner has certain advantages in its operation, among which may be mentioned the fact that a clock thermostat can be used to turn on the heat in the service sections of the house while the other clock thermostat will prevent heat being wasted out of open bedroom windows before the family is awakened. Similarly, when late entertainments occur, the master's portion of the house may be kept heated long after the servants are in bed and their heat lowered for the night. At times when the family is away over night, or on trips, the master's portion may be left entirely without heat if the weather is not too severe and yet the servants may be kept comfortably warm. The system in this residence was designed and installed by E. V. Turner of White Plains, N. Y., and Mr. Turner tells us that the building is calculated for an outside temperature of zero with an inside temperature of 70 deg. Fahr. except in the garage which was figured to 50 deg. Fahr. The maximum air temperature to be used is 150 deg. Fahr. and provision has been made to prevent cold downdrafts from the glass wall section by considering this wall the same as an outside uninsulated wall while warm air ducts are arranged to discharge heated air in the vicinity of the glass wall to counteract the greater heat loss therefrom.

It will be noted in Fig. 3 that all of the attic floor has been made direct radiation as this is in the service portion of the house; on the second floor, see Fig. 3, all of the baths are supplied with direct radiation while the masters' bedroom has two warm air supplies and one

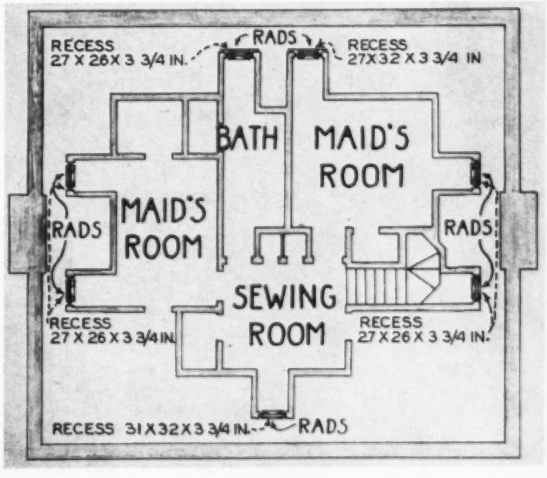


Fig. 3—This plan shows the heating layout for the servants' quarters on the third floor of the building. A separate control system was provided for this section of the building

return circulation outlet. All of the other bedrooms have one warm air supply and one recirculation outlet. All of the baths have direct radiation. On the ground floor, Fig. 5, the living room has two warm air supplies and

OUTSTANDING VALVE SERVICE

KENNEDY Valves 30 and 40 years old are still in daily use—too good to be replaced. The sturdiness and lasting qualities that have enabled these Kennedy old-timers to give outstanding service are built into each of the present Kennedy designs—together with innumerable refinements and improvements which make the Kennedy Valves of today even more outstanding in value.

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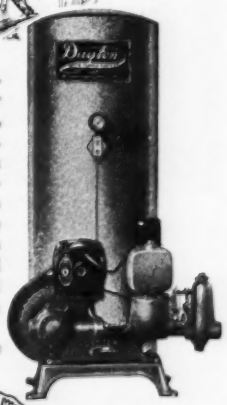
VALVES-PIPE FITTINGS-FIRE HYDRANTS
BUY KENNEDY PRODUCTS FROM YOUR LOCAL DEALER

SCOOP UP PROFITS with DAYTONS



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Twenty-nine years experience in building the finest pumps is represented by the Dayton label. There's a Dayton Water System to meet the needs of *any* prospect. Added to this is an aggressive sales campaign, well planned advertising and a splendid record for fair dealing with customers and dealers alike.

Why not cash in on the very definite *trend to Daytons?* Write TODAY for catalog, prices and name of our nearest factory representative.

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Dayton
WATER SOFTENERS

THE DAYTON PUMP & MFG. CO.
DAYTON, OHIO
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two recirculation connections, the library has one of each, the hall and dining room have a similar arrangement while the kitchen has both a radiator and a warm air supply but no recirculation while the garage has a radiator only. In the cellar, Fig. 1, the game room has two warm air supplies and one recirculation connection.

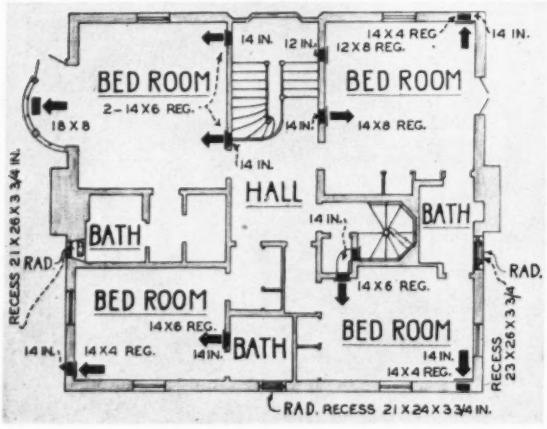

Fig. 4—Here is layout of the bedrooms on the second floor. All of the baths on this floor are supplied with direct radiation

As shown in the floor plans, the attic contains two maid's rooms, a sewing room and a bath; the second floor has a masters' bedroom with private bath, a boy's bedroom with a private bath, two guest bedrooms with a connecting bath between and a large hall; on the ground floor there are a living room, library, dining room, hall, kitchen and garage while in the cellar is a foyer, game room, apparatus room and space for storage. This residence was designed by Julian Gregory, architect of New York working in conjunction with the Editorial Staff of "House and Garden" and includes some of the latest ideas in residence construction as well as constituting an

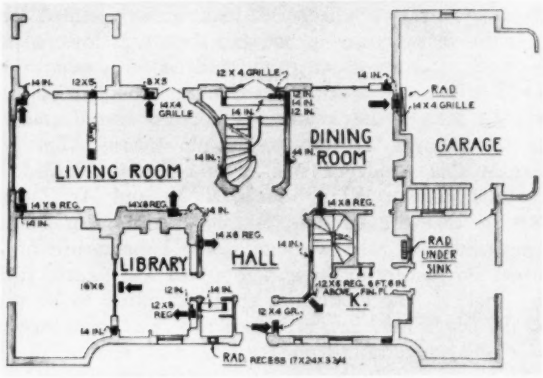

Fig. 5—This first floor plan shows the living room which has two warm air supplies and two recirculation connections

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Approved by Underwriters' Laboratories

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example of the trend in this type of work. Color in the finish has been used sparingly and in light tints throughout the residence.

Insulation has been obtained by the use of insulating lath 1 in. thick on all outside walls and ½ in. thick on all inside partitions and ceilings. This not only provides heat insulation but also serves to make the rooms sound-proof as well. Special window frames have been used with built-in weatherproofing. The windows are double hung on the attic floor but are of the casement type on the second and ground floors. Doors with trim matching the windows are used for openings onto all terraces. Probably the two most striking features in connection with this residence are the use of glass brick for an exterior wall extending from the ground floor to the roof and lighting up the stair halls and entrance and the installation of an electric eye on the garage door so that it will roll up and automatically open whenever the ray of light is interrupted.

Forgotten Room—

(Continued from Page 61)

rejuvenate your home. . . . Portraits in Music will be heard again tomorrow evening at nine-fifteen. . . . Good evening."

It will be noticed that the two elements of an entertaining program—well chosen numbers and an absolute minimum of "plugging"—are embodied in this quarter-hour period. It naturally follows, then, that it is well received; so well that the sponsor is continually receiving congratulations from his friends, customers and members of the trade.

The Wednesday evening programs, lasting a half hour, include, as stated, a talk by Mr. Picard, timed for exactly seven and one-half minutes. To use his own words: "These talks are informative, educational; and while generalized for the benefit of the home-owner, they point the many benefits of home modernizing."

To give some idea of the subjects on which he will speak and the method of handling, the following brief outlines are given:

1—Why the public should see that they employ only a qualified, registered master plumber who is responsible for the work of his registered journeymen; this, manifestly, to guard against the employment of the so-called handy-man, "who is a menace to your home and, due to his ignorance of sanitary matters, will endanger the health of your family." Then dwell on the importance of the master plumber, how he must keep constantly in touch with sanitary and industrial developments, at the same time be posted on such esthetic values as color schemes, and with an eye to practical planning. "He must be forever alert to dangers springing from such sources as the pollution of water and the evils of cross-connections."

2—The importance of the city health department in incorporated cities as well as the plumbing inspection departments of outside areas, and the type of men required for such work; why they are there and precisely how they safeguard the public in the all important mat-

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PENNSYLVANIA RANGE BOILERS

More than anyone else, you plumbing and heating men on the firing line are responsible for Pennsylvania Range Boilers being what they are. Because of your demands for dependable boilers, Pennsylvania builds Range Boilers that help you maintain your reputation for installations that last and service your customers can count on.

All Welded, Riveted and Welded and Everdur Boilers in a Complete Range of Sizes. Also Boilers and Tanks of Special Shapes and Sizes Built to Order.

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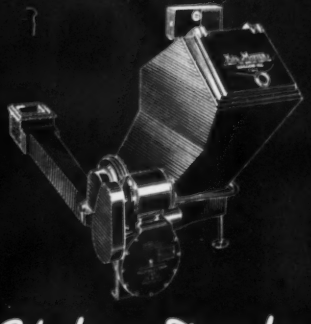

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7 MAJOR POINTS

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Ask us to prove it!

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Use Sulflo on your next threading job!

CUTS CLEAN THREAD. SAVES THE TOOL.
Ask your supply house or write for bulletin No. 6

Sulflo
Sulphur that flows

THE MODERN CUTTING OIL

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Sulflo Pipe Joint Compound—Sulflo Soldering Paste

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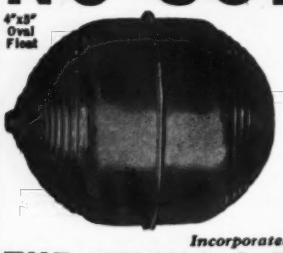

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Every item in the Paine line is in response to an insistent demand for a fool-proof specialty, of highest quality, the utmost utility, and thoroughgoing convenience and ease of use.

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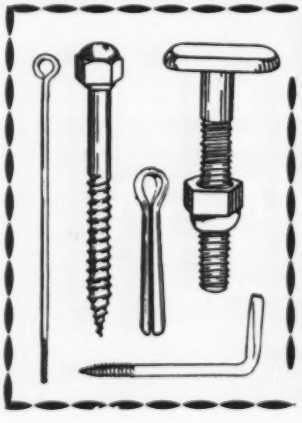
Send for New Complete Catalog

METAL SPECIALTIES FOR INDUSTRY

The Paine line includes LEAD AND STEEL EXPANSION ANCHORS, PAINE SPRING WING TOGGLE BOLTS, PIPE STRAP, WIRE PIPE HOOKS, PERFORATED HANGER IRON and many other items, INCLUDING SPECIALTY STAMPINGS TO YOUR ORDER. Each is the leader of its kind.



HAVE HINDLEY'S HANDY!

Make a practice of having HINDLEY'S Plumbers' Specialties handy and avoid loss of precious moments on the job. The Hindley line of plumbers' specialties has a reputation for being of high quality. Carry a COMPLETE assortment and prepare yourself for ANY emergency. Order a FULL supply of these better quality plumbers' specialties TODAY . . . and keep them HANDY. Hindley Mfg. Co., Valley Falls, R. I.

HINDLEY'S
PLUMBERS' SPECIALTIES

ter of health as related to the inspection of plumbing installations.

3—This will be a talk to the home-lovers and those about to build their own homes. It will contain many helpful ideas, based on Mr. Picard's long experience, and while it concerns location, architectural design and floor plans, such seeming abstractions will nevertheless be shown to have direct bearing on planning the ideal plumbing scheme.

4—"The Forgotten Room." (This subject will be divided into two Forgotten Room talks—one dealing with the kitchen, the other with the bathroom.) Taking the kitchen as the first of these rooms, it will be shown how poorly the kitchen of yesterday compares with that of today, with its more efficient, highly attractive, time-saving fixtures and appliances; how the arrangement of multiple shelving units and many other time-saving devices have cut by half the time spent and distance covered in preparing meals.

5—"The Forgotten Room—The Bathroom." How to place fixtures in order to secure the greatest convenience and comfort, at the same time avoid wasted space, secure the best results from lighting fixtures, attain the greatest sightliness and render the room easy to keep clean.

Practically the whole plan of broadcasting revolves around the idea of modernizing the home: how it adds to its charm and usefulness, and how the appreciation of property values follows as a matter of course. At the same time, the element of health is also given due prominence, but entirely without resorting to alarmist methods of approach.

Tie-ins and contacts are constantly being established and maintained. When Picard first went on the air, announcement cards similar to that shown were sent to all customers and architects and members of the more outstanding clubs of the East Bay cities of Oakland, Berkeley, Piedmont and Alameda; and when the expanded program schedule went into effect two weeks ago (July 15), cards announcing the new schedule were also sent out, this time including those persons who had either written or telephoned Picard's office or visited his showroom as the result of his radio merchandising. His fleet of three modern trucks carries this sign: "Tune in KRE. Picard presents 'Portraits in Music' every night except Saturday and Sunday, at 8:00."

Tied in very definitely with his radio work is the invitation to "Call at Picard's showroom at 4166 Broadway, in Oakland." Occupying the entire ground floor, his air conditioned showroom is at once inviting and informative, replete with refrigerators, ranges, bathroom units, many of these fixtures being hooked up to electric, gas or water connections. At the rear, right, is the model kitchen; at the left, the model bathroom. Throughout, from front to back, top to bottom, the place is absolutely immaculate—not even a trace of dust.

Mr. Picard has this to say of building business by radio: "As a business-builder, experience has taught me that radio is capable of opening many new and profitable contacts. But it takes careful preparation and expert counsel from the studio. And another thing: a man can't go into it for a week, nor a month, and expect results. Listeners have to be won over from other programs to yours, and that takes time. Radio is no proper medium for the 'in-and-outer.'"

Trailer Camps—

(Continued from Page 79)

a trailer arrives on the scene, all that is required is for it to drive into the lot in such a way that the waste outlet from the trailer is over the waste inlet to the septic tank.

Three Florida cities have taken hold of the trailer camp proposition in a strong way. They are Jacksonville, Miami and Tampa, all three cities having a very great problem to meet in caring for the visiting trailer population. It should be stated that each of the three cities has a fine plumbing code, considerably more strict than state plumbing laws, and that in each instance local trailer camps are under strict city regulation.

One of the finest trailer camps in the country is located at Miami. It is called the Bell Haven Camp. In Figs. 3, 4, 5, 6 and 7 are views of this camp, from which it will be seen that everything possible for the comfort and health of visiting trailer parties is done, including the furnishing of recreation grounds, etc.

A letter explaining some of the features, states that all toilet rooms and showers are tiled, floors and walls, with a separate drain for each trailer, as in Fig. 2. Drinking water for the camp is supplied under pressure, from deep wells, tested periodically. The swimming pool is supplied by two 6 in. deep wells, pumping 500 gallons of fresh water per minute, the water having a temperature of 76 deg. Fahr. The swimming pool is 80 ft. long.

Connected with the camp is a laundry plant where tourists may have their laundry done.

COLORADO REGULATION

Colorado.—The Colorado State Board of Health has become very active in the working out of the trailer camp problem.

Colorado trailer camp regulations, which are very comprehensive, include the following regulations pertaining to plumbing:

WATER SUPPLY

There must be an adequate supply of water approved by the State Board of Health.

SHOWERS AND SLOP SINKS

Camps shall have one flushing slop sink for each 30 trailer stalls or fraction thereof for the purpose of emptying domestic sewage from trailer toilet receptacles.

One shower bath connection should be provided for every 20 women or fraction thereof and for every 20 men or fraction thereof.

TOILETS

Camps shall provide toilet units placed in separate compartment inclosed with proper partitions, in the ratio of one toilet unit for women for every 12 trailer stalls and one toilet unit for men for every 20 trailer stalls in addition to one urinal for every 30 trailer stalls.

Fly-tight privies, approved by this department, may be used to fill the above requirements in unsewered districts.

REFUSE AND SEWAGE DISPOSAL

All waste water from trailer sinks shall be wasted into public sewers through approved sewer connections, or into pails, which shall then be emptied into a public sewer or connection with a septic tank. Drainage of water onto the ground surface is strictly prohibited.

KELLY VALVES

STOP FUEL WASTE

LOOK AND ARE SIMPLE OPERATING

AND

LISTEN TO PRAISE AFTER INSTALLATION

TRADE MARK KELLY

Above is a cross section view of the "KELLY" Vacuum Valve. Simple, economical, positive in action.

When faulty radiator valves are the source of your heating system problems, choose from the "KELLY" Line. Because this line is COMPLETE, made up of steam air and vacuum valves for steam radiators . . . quick venting steam air and vacuum valves for large and small mains, returns and risers . . . and a complete line of non-adjustable steam air valves, there is a valve RIGHT in price, quality and performance for every purpose. Effecting a new degree of comfort from one-pipe systems "KELLY" Valves STOP fuel waste, LOOK and are simple operating, and because of their outstanding performance on countless systems LISTEN to praises from satisfied users. Write for literature which describes the *complete* "KELLY" Line in detail.

NATIONAL METAL PRODUCTS CORP.

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Eastern Office and Warehouse

Evins F. Glore Sales Corp.
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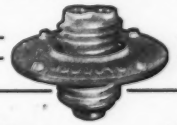
THE ADJUSTO

The New Departure in Direct Water Heaters and Boosters



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For Heating Domestic Hot Water

Adjustable—Adjusto is the only direct water heater that can be adjusted to control volume and temperature of hot water.

For Increasing Boiler Capacities

Adjusto is a little giant of a booster! Highly efficient! Simple! Inexpensive! Don't fail to investigate this Booster! It will make you friends and money.

Priced to Sell — Write now for new Folder

RADIATOR SPECIALTY CO., Charlotte, N. C.

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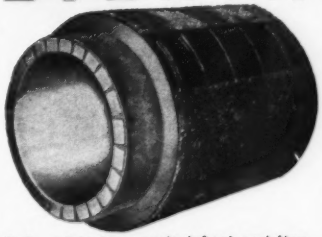


Redwood is the greatest heat resisting wood known.

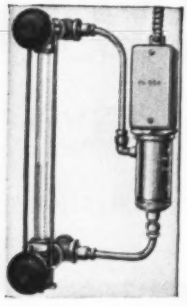
Wyckoff Steam Pipe Casings are products of 82 years' experience, increasingly in favor with Architects, Engineers and Contractors.

Wyckoff's Redwood Steam Pipe Casings are the perfect insulation for underground steam or hot water lines; the perfect frost-proofing for exposed pipes.

2", 3" and 4" thicknesses—Sizes 2" and up. Lengths to 12 feet. Practically indestructible, with low heat transfer factor. Cannot rot, shrink, swell, warp or leak. Unaffected by worms, ants and termites. Tenon and socket joints. Tin lined for steam pressures over five pounds. Ship from stock.

Write for details of this and other Wyckoff Piping for water supply lines, chemical lines, sewage lines, mines, fume stacks, etc.

A. WYCKOFF & SON CO., Home St., Elmira, N.Y.



No. 854

The "MICRO" Boiler Protector

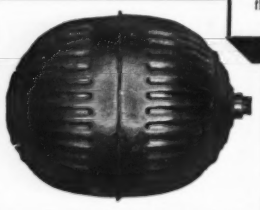
A Combination Low Water Cut-out and Pressure Switch. Comes complete with Fittings—Easy to Install—LOW IN PRICE. Micro Switch is approved by Underwriters. Made in 3 Types.

Send for Circular D8

MAID-O'-MIST, Inc.
180 N. Wacker Drive, Chicago, Ill.

Here's why They Switch to Reichert

The patented seam and spud construction makes Reichert Solderless Heavy Gauge Sheet Copper Floats the strongest on the market. Thoroughly inspected, tested and guaranteed leak-proof. Write for folders on the entire line of floats and rubber tank balls.



The REICHERT Float & Mfg. Co.
2238 Smead Ave.
Toledo, Ohio

·WARNOCK·
Triple Wear Wrenches

The Warnock wrench is easy to adjust. The strap is arranged in such a way that it can be drawn absolutely tight in *one* movement. Notice, too, that this strap is triple folded at the point of greatest strain.

For chrome, brass and nickel plated pipe

WARNOCK MFG. CO., Worcester, Mass.

Converts Furnace into Blowtorch in just 5 Seconds

Just Five Seconds! That's all it takes to convert the UNIQUE "Combination" from a furnace into a heavy duty blowtorch. Loosen three wing nuts, remove top structure, slip on extra handle, and in a flash you have a torch ideally suited to melt lead from soil pipe, for preheating and thawing. Can be used in ANY position. When used as a furnace it melts 20 lbs. solder in 7 min.; 40 lbs. in 10 min. Its finely controlled flame, 2 to 10 in. long, operates 4 to 6 hours on ONE gal. gasoline. Seamless steel generator encased in heat resisting casting. All parts easily cleaned and replaced. No special tools required. Heavy steel tank. Bottom is welded, fitted with shock ring. Fittings are brazed. No soft solder used. Funnel filler fitted with dust cap.

Write for further details today.

UNIQUE MFG. CO., Inc.
Established 1921
221 W. WALTON STREET
CHICAGO, ILLINOIS, U. S. A.

Campaign—

(Continued from Page 89)

As another indication of continuing interest in the slogan, the window display and the promotional campaign behind the two is the great number of letters coming in daily to DOMESTIC ENGINEERING requesting copies of the book, "The Story of the Bath." Outstanding in the many requests received have been those from teachers in rural schools.

It seems plausible that contractor-dealers should be able to cash in on this interest. The first reason for this belief is that the message of good plumbing is being told to children of school age. The children, in turn, are carrying this message to their homes and their parents. Coming as it does from a non-partisan source, this message has additional weight and therefore, gives the contractor-dealer a possible source of entree into the homes of his potential market that otherwise he might not get.

CAMPAIGN SUPPLEMENTS PUBLICITY

A second reason for the belief is that such a slogan and such an approach is a supplement to the constant volume of favorable publicity which the products and services of our industry are receiving in newspapers, magazines and over the radio. Then too, this slogan, "A Bath A Day Keeps You Fit Every Way," and "The Story of the Bath" both have an element of human interest which is, in itself, an added selling point.

This naturally leads to the thought that the time tested slogan and "The Story of the Bath" can be used as two additional guns in the sales campaign of any contractor-dealer. A supply of the books might be kept on hand to be given to a selected list of prospects or to that group attracted into the shop by the window display. Such material would, therefore, open a new line of approach to the buying market.

The display illustrated in this article costs $4.75 complete, ready to go to work in your show window. The price is set by the manufacturer and includes shipping charges. DOMESTIC ENGINEERING is not connected in any way with this company. "The Story of the Bath" is published in booklet form by DOMESTIC ENGINEERING. The front cover is illustrated in this article. Copies are obtainable at 10 cents each. Requests for further information and orders should be addressed to THE EDITOR, DOMESTIC ENGINEERING, 1900 Prairie Ave., Chicago.

MOST SILENT OPERATING VALVE

SLATER No. 2-A Vacuum Valve

FOR HEATING COMFORT AND CUSTOMER SATISFACTION

come to headquarters!

Slater Mfg. Co., Wakefield, Mass.

U. S. Distributor
SMITH & DALE
457 Stuart St., Boston, Mass.

Safety—

(Continued from Page 73)

into a closed system. Mains may be clogged by rust and scale packing into a fitting. The cold water supply valve may be closed. Extreme weather may cause a freezing in the mains. Such accidental conditions are well within the realm of possibilities in practically every system and should be guarded against.

Water hammer (shock pressure) created by the quick closing of a fixture, or street main pressures boosted for emergency fire purposes, may burst the tank. A relieving device cannot be expected to hold the pressure down under such conditions. It will, in the case of water hammer, tend to reduce the shock. Reducing valves and air cushions, however, are designed for just such conditions and should be installed where similar conditions are known to exist.

Many relieving devices are defeated by their incorrect installation.

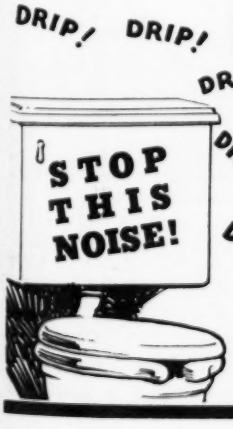
Pressure is communicated to all parts of the system. Therefore, a pressure relief valve should operate safely, irrespective of its position in the system. When first installed this is true, but rust, scale and other foreign matter tend to deposit in dead ends and clog the pipe as indicated in Fig. 11. For this reason, the valve should always be installed in an active flow line. The cold water supply line to the tank or the hot water line to the fixture, close to the tank, are the safest positions. Never install a shut-off valve between the relief valve and the tank which it is to protect.

TABLE I—FIG. 6

A	Diff. B — C
½ x 1½	34
¾ close	16
¾ x 2	23
¾ x 4	33
1 close	9
1 x 3	14
1 x 6	24

Difference between B—C recorded when B was 212.

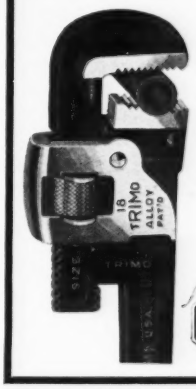
Some have an erroneous impression that a pressure relief valve will prevent overheating. In the first place, if



ELIMINATE the annoying noises, leaks and whistles which result from an inferior, faulty ball cock and win a lasting and profitable friendship. You can do it **best** with SHERWOOD Ball Cocks. They're QUIET.

SHERWOOD BRASS WORKS
6331 EAST JEFFERSON AVE., DETROIT

SHERWOOD
BALL COCKS



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When you are placing your order for pipe tools and intend to make sure of the best, just say "Trimo." A name that stands for standard quality, known for dependability for fifty years.

TRIMONT MFG. CO., INC.
Roxbury (Boston), Mass.

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Look for the Red Tag — always attached to every Trimo.

Double Lavatory

OR SHAMPOO FIXTURE WITH GOOSENECK SPOUT

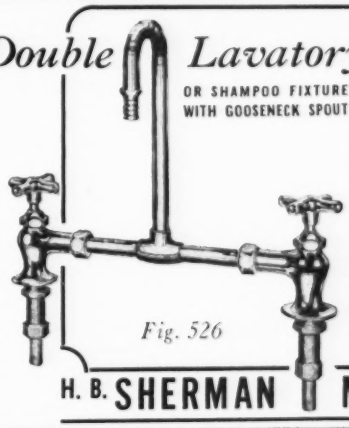

Fig. 526

BRINGS old lavatories up-to-date. Supplies luxurious temperature controlled water through one spout. Has quick opening valves, forged brass cross handles and renewable seats. All metal slip joint connections require no cutting. 10 to 12 in. adjustable center to center spread; furnished larger on special order. Chromium plated. Complies with all sanitary codes.

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List of distributors in McRae's Blue Book
Sales Agency for Canada:
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Saves More Than Any Other Tool
GUARANTEES Your Profit

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No. 6 Electric Hammer

WRITE FOR CATALOG

SpeedWay Manufacturing Co.
1863 So. 52nd Ave., Cicero, Ill.

More Tool for the Money

on an open main system, there can be no pressure built up to open the relief valve, no matter how high the temperature is raised. Neither will the formation of steam in the system build up pressure in this type of system. Pressure above the prevailing street pressure cannot be developed. Unless water is discharged, there is no heat discharged from the tank.

In the second place, when on a closed system, the amount of water and the consequent number of heat units discharged would be but a small percentage of the average heat input. Assuming that the temperature is raised 100 degrees and the relief valve discharges 0.7 gallons of water, the number of heat units discharged from the boiler would be 5.84 lb. multiplied by 50 degrees (average temperature rise) or 292 heat units that would be taken out of the tank during the discharge period of the relief valve. The smallest heater would have a heat input of several times this amount. Then again, if the relief valve were discharging from increased pressure in the tank, water could not enter the tank. A relief valve is always set to relieve at a pressure above the normal prevailing supply pressure.

TABLE II—FIG. 4

Recorded Temperatures

Elapsed Time	A	B	C	D	E	F	G
0	70	70	70	70	70	70	70
½ Hour	160	157	138	114	74	70	70
1 Hour	192	185	165	160	142	126	126
1½ Hour	228	223	206	201	178	165	162

These figures are average for the type of installation and clearly show the wide temperature differences that may exist between the top and bottom of the tank.

Readings will vary as the heat input is changed or the size of circulating pipes X and Y are changed.

If the heat input rate is noticeably increased or the size of the pipes X and Y are reduced, an even greater temperature differential will be obtained.

Normally, domestic hot water tanks are designed for, and operate with, an internal pressure considerably above atmospheric. Conditions can and do develop which reduce this internal pressure below atmospheric. A partial vacuum has been created. Under ordinary circumstances the internal pressure presses outwardly against the walls of the tank, but when a partial vacuum is created, the external pressure being greater than the internal pressure, the forces are reversed and the prevailing pressure pushes inwardly against the walls of the tank, tending to push them together. Many tanks which will safely stand a high internal pressure will collapse when the external is slightly above the internal pressure; in common terms, when a low vacuum is created. The extent of the vacuum necessary to collapse a tank will naturally vary with the strength of materials used and the design of the tank.

There are tanks so designed that no amount of vacuum will collapse them unless corrosion has weakened them far below their normal strength. Other tanks will stand up under moderate vacuum conditions but will collapse under a high vacuum. It is impossible to estimate the strength of a tank in service, or forecast the time or extent of vacuum conditions. Need for the protection of the tank against this unexpected condition is obvious.

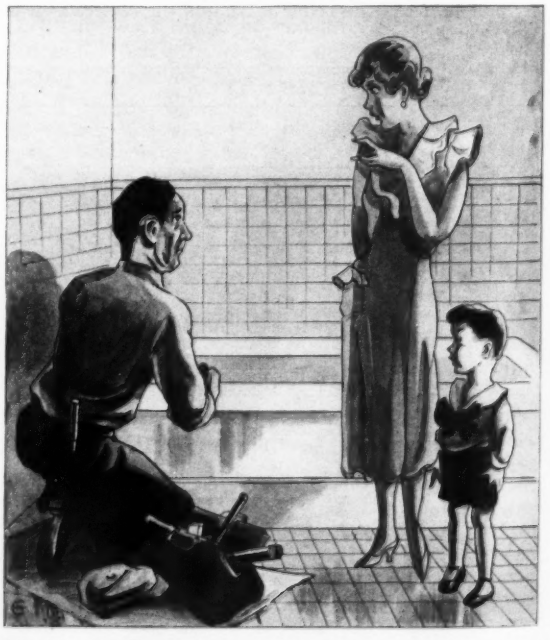
TABLE III—FIG. 7

Tests prove that tank can be dangerously overheated when a temperature relief valve is installed too far from tank.

Elapsed Time	A	B	C
0 Hour	154	141	132
¼ Hour	161	141	132
½ Hour	163	144	132
1 Hour	164	154	133
1¼ Hour	166	156	133
0 Hour	185	175	138
¼ Hour	185	175	138
½ Hour	186	176	139
1 Hour	190	180	140
1½ Hour	192	182	142
2 Hours	198	186	143
3 Hours	202	191	147
4 Hours	207	196	148

Note that the difference between temperature C, where the relief valve was installed, and temperature at A, which is the temperature delivered by the heater, is 59°. By the time that the temperature C reaches 212°, the temperature A would be approximately 271°. Water in the tank would be dangerously overheated.

A vacuum is created in a tank when water is drained from the system at a point below the tank, if there is no water supply to replenish that which is drained out, or no means provided to allow air to enter the system to replace the water that is drained out. Many unforseen



"Could you tell me where you have your zoo? Junior is so fond of animals, he wants me to take him there. He tells me that you have a monkey ranch."

conditions may develop to cause a vacuum. A stoppage may occur in the cold water supply in a two or three-story building. When a fixture is opened on one of the lower floors, water above the fixture flows to it. This tends to drain the system and part of the water will be siphoned out of the tank above, creating a partial va-

cuum possibly sufficient to collapse the tank. If, however, a fixture should be opened on the same or any floor above the tank, it would let air into the pipes and tank to replace the water drained out, and thus equalize the pressure and prevent a vacuum of any consequence.

Occasionally, street mains burst, requiring the shutting off of the normal service pressure. With the pressure in the mains reduced to atmospheric, water in the house service pipes tends to flow back into the street mains and create a vacuum in the domestic system. Sometimes, during a fire emergency, water is pumped from the street mains so rapidly that the pressure drops low enough to let the water drain from the house service pipes back into the street mains, thus creating a vacuum. An actual vacuum may be created in the street mains which will intensify the conditions in the house service pipes.

By installing a vacuum relief valve at the tank to allow air automatically to enter the system in case a vacuum is created, the internal pressure is prevented from dropping far enough below the external pressure to protect the tank against collapse.

Usually, after a tank has collapsed from vacuum, it is unfit for further service. The metal is cracked and the tank leaks. Restoration of the pressure may cause expensive water damage, particularly if the occupants of the house are away at the time. The tank may not be ruptured when it collapses, and restoring the pressure may round it out to look normal, except for a few wrinkles. Nevertheless, where the metal has been bent, it has become perceptibly weakened and may fail quickly and unexpectedly.

Vacuum relief valves should be placed at a level with, or slightly above, the top of the tank. They may be installed on either the hot or cold water side. But as a vacuum usually originates in the cold water line, that would be the logical point of installation. Going further into the matter, should the vent in the cold water direction tube be stopped, and with the vacuum relief valve on the hot side, it would be possible to drain practically all of the water out of the tank.

TANK COLLAPSE

Relief valves are made in many combinations. There are independent valves for temperature, pressure or vacuum protection. Combinations of different features are made to meet the requirements of every installation. Temperature and pressure; temperature and vacuum; pressure and vacuum; and all three: temperature, pressure and vacuum in a single unit, provide every needed type for safety, as well as satisfy individuals' ideas. There is no reasonable excuse for failure to protect the domestic hot water tank.

When individual relieving devices for each respective condition are used, they should be installed as directed for the individual type.

But when a combination valve, having a temperature relief feature, is used, it must be installed in a position as dictated for a temperature relieving device.

With the installation of every domestic hot water heater and tank, there is an obligation. It may be a legal one, drafted by city or State, but there is always the moral obligation.

It is the moral obligation of any and every mechanic who installs a tank or heater to employ every reasonable means to protect the tank against these dangers.

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Specialists in the Manufacture of Corrosion-Resistant Products

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ACID PROOF
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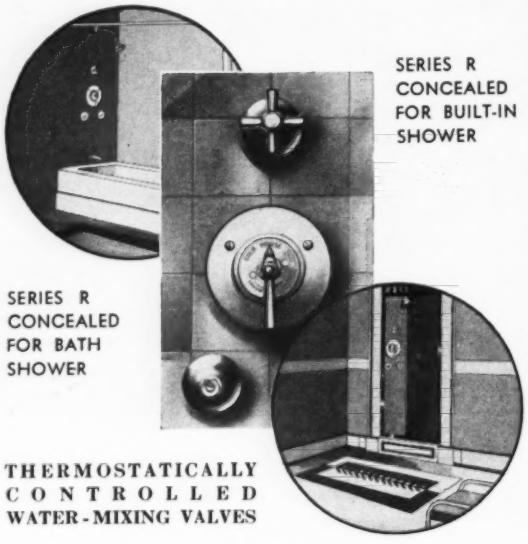
For **SAFETY** *in the home* **SHOWER**



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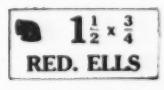

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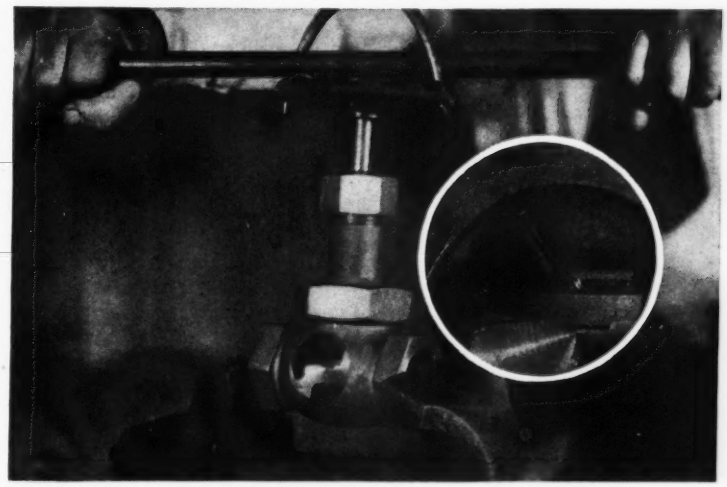
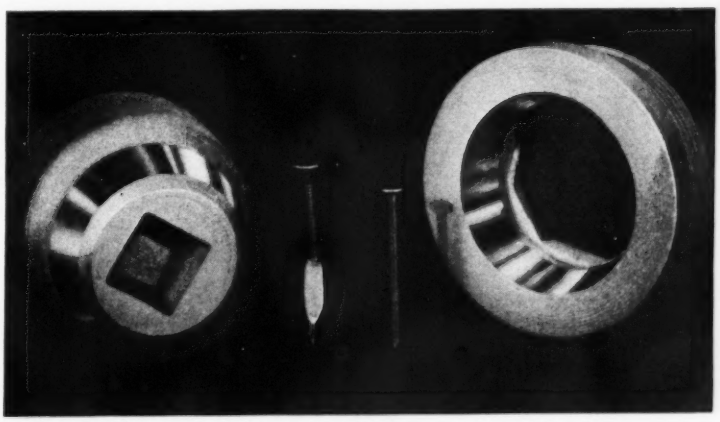


A nail crushed between valve disc and seat. Note leverage to obtain necessary power.



Nail flattened without marring either the valve disc or seat.

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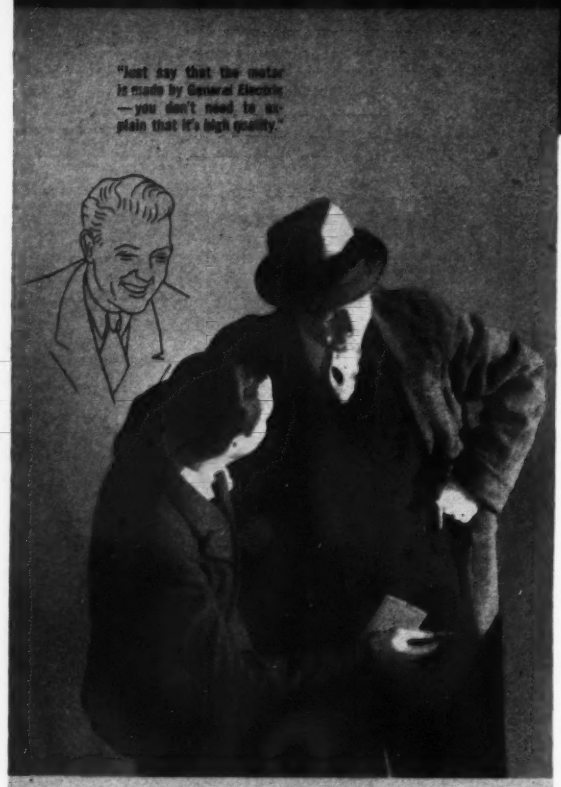

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